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FINAL

National Petroleum Reserve-Alaska

Integrated Activity Plan

Environmental Impact Statement

Vol Maps

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U.S. ment of the Interior
Bure nd Management

BLM

Alaska

NATIONAL SYSTEM OF PUBLIC LANDS
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

The Bureau of Land Management Today

Our Vision

To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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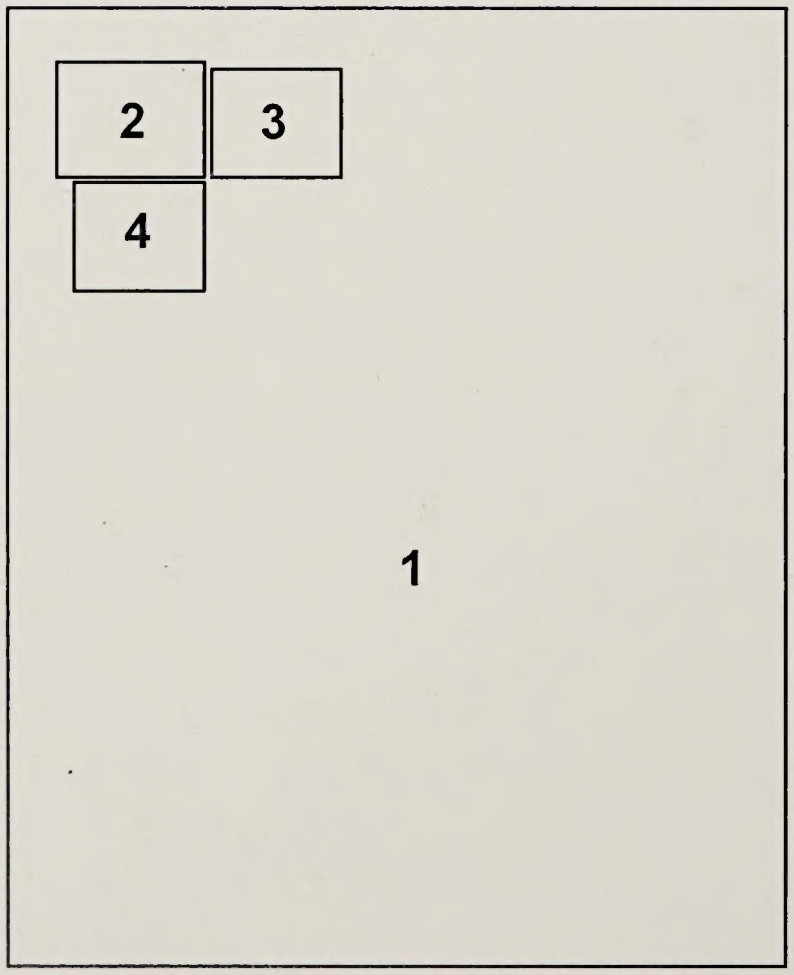

Cover Photos:

1. Along the Archimedes Ridge in the Utukok River Uplands of the National Petroleum Reserve-Alaska.
   © Patrick Endres

2. Winter petroleum exploration, National Petroleum Reserve-Alaska. Photo by NSSI

3. Polar Bear, North Slope, Alaska.

4. Two newly born caribou calves in the Utukok River Uplands of the National Petroleum Reserve-Alaska.
   © Patrick Endres

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C.2

National Petroleum Reserve-Alaska

FINAL

Integrated Activity Plan/ Environmental Impact Statement

Volume 7
Maps

Prepared by:

U.S. Department of the Interior
Bureau of Land Management
Anchorage, Alaska

In cooperation with:

North Slope Borough
U.S. Bureau of Ocean Energy Management
U.S. Fish and Wildlife Service

November 2012

How the IAP/EIS is Organized

VOLUME 1

Chapter 1 – Introduction: Summarizes the purpose of and need for this IAP/EIS and decisions to be made.

Chapter 2 – Alternatives: Describes and compares proposed management alternatives.

Chapter 3 – Affected Environment: Presents existing natural and socioeconomic resources in the NPR-A and trends, including those associated with climate change.

VOLUME 2

Chapter 4 – Environmental Consequences (sections 4.1 – 4.4): Provides the assumptions upon which the impact analysis rests and evaluates impacts of Alternatives A and B-1 on resources and uses in the NPR-A relevant to making a decision among the alternatives.

VOLUME 3

Chapter 4 – Environmental Consequences continued (sections 4.5 – 4.7): Evaluates impacts of Alternatives B-2 (preferred alternative), C, and D on resources and uses in the NPR-A relevant to making a decision among the alternatives.

VOLUME 4

Chapter 4 – Environmental Consequences continued (sections 4.8 – 4.13): Evaluates the cumulative impacts on resources and uses in the NPR-A and other effects relevant to making a decision among the alternatives.

VOLUME 5

Chapter 5 – Consultation and Coordination: Describes public and government (including tribal) consultation undertaken for this plan and the development of alternatives and lists the plan's preparers.

Chapter 6 – Comments and Responses: Presents public comments on the Draft IAP/EIS and responses to the comments.

VOLUME 6

Appendix A: ANILCA Section 810 Analysis of Subsistence Impacts

Appendix B: Federal, State, and Local Permits and/or Approvals for Oil and Gas Exploration, Development, and Production Activities

Appendix C: NPR-A Climate Change Analysis: An Assessment of Climate Change Variables in the National Petroleum Reserve in Alaska

Appendix D: Essential Fish Habitat

Appendix E: Common, Scientific and Iñupiaq Names of Species Listed in the IAP/EIS

Appendix F: BLM Sensitive Species List for Alaska

Appendix G: Information, Models, and the Assumptions Used to Analyze the Effects of Oil Spills

Appendix H: Air Quality Related Values and Dispersion Modeling Results

Glossary and Bibliography

VOLUME 7

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2-1 K	Alternative A: K Stipulations
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2-2-1 K	Alternative B-1: K Stipulations
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2-2-2 K	Preferred Alternative B-2: K Stipulations
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D-1	Essential Fish Habitat

Map 1-1
Land Status

Source: BLM, 2011

Land Status

Surface

- Bureau of Land Management
- Native Patent or IC
- Native Selected
- State Patent or TA (near Umiat)
- Major Military (north of Barrow)
- Private Land - Native Allotments

Federal Subsurface

- Federal Subsurface

Federal subsurface rights were also reserved to the US government under Native Allotments. Features too small for hatching symbol.

- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160°W 155°W 150°W

70°N 69°N 68°N

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
Dease Inlet
Cape Simpson
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Point Franklin
Point Belcher
Peard Bay
Admiralty Bay
Wainwright
Inaru River
Kuparuk River
Atqasuk
Itkillik River
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Tuvaktuk River
Ivisaruk
Kuk River
Kaolak River
Avalik River
Meade River
Point Lay
Utukok River
Awuna River
Colville River
Maybe Creek
Umiat
Nuiqsut
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Kikiakrorak River
Kogosukruk River
Anaktuvuk Pass
East Fork Eitivluk River
Otuk Creek

MAP 2-1
Alternative A
Land Allocations

Oil & Gas Leasing and Infrastructure

Unavailable: 2008 ROD

Unavailable: unplanned

All other BLM-managed subsurface would be available for leasing.

Leasing deferred to stated year

Note: All BLM-managed lands would be available for applications for permanent infrastructure in support of offshore oil and gas development.

Special Areas

- Colville River
- Teshekpuk Lake
- Utukok River Uplands
- Kasegaluk Lagoon

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

0 6 12 24 36 48 Miles

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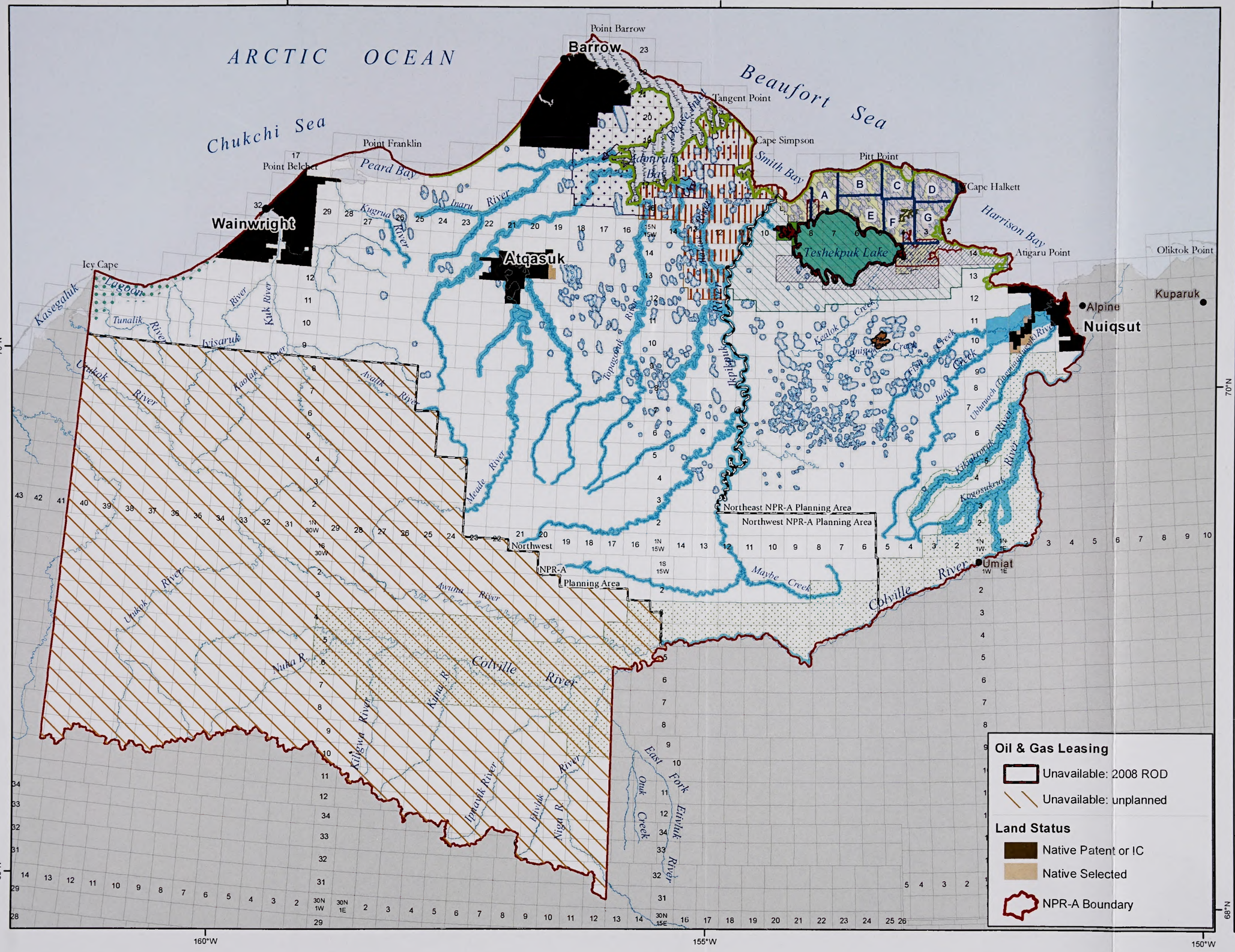
Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Point Franklin
Point Belell
Wainwright
KASEGALUK LAGOON SPECIAL AREA
2014
Atqasuk
Tangent Point
Cape Simpson
2018 TESHEKPUK LAKE SPECIAL AREA
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Oliktok Point
Kuparuk
Alpine
Nuiqsut
Umiat
UTUKOK RIVER UPLANDS SPECIAL AREA
COLVILLE RIVER SPECIAL AREA
Northeast NPR-A Planning Area
Northwest NPR-A Planning Area
Northwest NPR-A Planning Area
Admiralty Bay
Smith Bay
Peard Bay
Dease Inlet
Inaru River
Ikpikpuk River
Meade River
Colville River
Maybe Creek
Kogosukruk River
Utukok River
Kasegaluk Lagoon
Tapioqurk River
Kogru River
Kaolak Creek
Inigok Creek
Fish Creek
Judy Creek
Oumalik River
Killik River
Itkillik River
Etivluk River
Nigu River
Oak Creek
East Fork
Awuna River
Awuna R
Tuna R
Tunalik River
Avalik River
Tuktu River
Ivishak River
Ivu River
Ikpikpuk River
Pik Dunes
Ice Cape
70°N
68°N
160°W
155°W
150°W

MAP 2-1 K
Alternative
A
K Stipulations



Oil & Gas Leasing

- Unavailable: 2008 ROD
- Unavailable: unplanned

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipeline and road crossings.
- K-2 Deep Water Lakes: No permanent or temporary facilities on lakes Only essential permanent facilities within 1/4 mile of lakes
- K-3a Teshekpuk Lake not available for oil and gas leasing; permanent oil and gas facilities prohibited onshore within 1/4 mile of Teshekpuk Lake; permanent oil and gas facilities, except pipelines, prohibited in indicated portions of Ts. 14-15 N., R. 9 W. and T. 15 N. 8 W. U.M. greater than 1/4 mile from Teshekpuk Lake (Stipulation K-3)
- K-3b Dease Inlet - Admiralty Bay - Elson Lagoon - Associated Barrier Islands: Special stipulations for exploration and development
- K-4a Goose Molting Lakes: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- K-4a Goose Molting Area
- Goose molting research required (Table 2-2)
- K-4b Brant Survey Area
- K-5a Teshekpuk Lake Caribou Habitat Area
- K-5b Caribou Study Area
- K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
- K-7 Colville River Special Area raptor protection and CRSAMP Protection 2
- K-8a Pik Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
- K-8b Kasegaluk Lagoon: Permanent oil and gas facilities prohibited within the Kasegaluk Lagoon Special Area
- K-9 Caribou Movement Corridors: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- K-10 Southern Caribou Calving Area: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- B C K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

MAP 2-2-1

Alternative

B-1

Land Allocations

Oil & Gas Leasing and Infrastructure

Unavailable for Leasing and no exploratory drilling or non-subsistence permanent infrastructure, except for valid existing NPR-A leases and for a subsurface pipeline across Wainwright Inlet/Kuk River.

Note: All other BLM-managed lands would be available for leasing and for applications for permanent infrastructure in support of offshore oil and gas development.

Leasing deferred to 2014

Special Areas

- Colville River
- Teshekpuk Lake
- Utukok River Uplands
- Peard Bay
- Kasegaluk Lagoon

Wild & Scenic Rivers

- Wild & Scenic Rivers

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

MAP 2-2-1K
Alternative
B-1
K Stipulations

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Point Franklin
Point Belcher
Wainwright
Peard Bay
Tangent Point
Dease Inlet
Admiralty Bay
Cape Simpson
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Oliktok Point
Kuparuk
Alpine
Nuiqsut
Atqasuk
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Ivisaruk
Kuk River
Utukok River
Kaolak
Avalik River
Kokolik River
Meade River
Inaru River
Kugrua River
Topagoruk River
Ikpikpuk River
Ataktak River
Kealok Creek
Inigok
Fish Creek
Judy Creek
Uhlunoich Kuukpikmiugaktuk
Kikiakrorak River
Kogosukruk River
Umiat
Colville River
Maybe Creek
Awuna River
Carbon Creek
Driftwater Creek
Nuka R.
Kiligwa River
Kuna R.
Ipnavik River
Eivlvlak River
Nigu River
East Fork Eivlvlak River
Otuk Creek

Oil & Gas Leasing and Infrastructure
Unavailable for leasing and no new non-subsistence infrastructure

Land Status
Native Patent or IC
Native Selected
NPR-A Boundary

- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipeline and road crossings
- K-2 Deep Water Lakes: No permanent or temporary facilities on lakes. Only essential permanent facilities within 1/4 mile of lakes
- K-4a Goose Molting Area (air restrictions only)
- K-4b Brant Survey Area
- K-5 Teshekpuk Lake Caribou Habitat Area (air restrictions only)
- K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
- K-7 Colville River Special Area raptor protection
- K-12 Western Arctic Herd Habitat Area (air restrictions only)

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

MAP 2-2-2
Preferred Alternative
B-2
Land Allocations

Oil & Gas Leasing and Infrastructure

Unavailable for leasing or exploratory drilling

Unavailable for leasing and no new non-subsistence infrastructure or exploratory drilling; all other BLM-managed lands would be available for applications for permanent infrastructure in support of offshore oil and gas development.

Leasing deferred to 2014

Special Areas

- Colville River
- Teshekpuk Lake
- Utukok River Uplands
- Peard Bay
- Kasegaluk Lagoon

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS

MAP 2-2-2K
Preferred Alternative
B-2
K Stipulations

K-1 River: No permanent or temporary facilities in stream bed
No permanent facilities within listed distance from river except essential pipelines and road crossings

K-2 Deep Water Lakes:
No permanent or temporary facilities on lakes
Only essential permanent facilities within 1/4 mile of lakes

K-3b Kogru River, Dease Inlet, Admiralty Bay, Elson Lagoon, Peard Bay, Wainwright Inlet/ Kuk River, Kasegaluk Lagoon, and their associated Islands: Special stipulations for exploration and development

K-4a Goose Molting Area

K-4b Brant Survey Area

K-5 Teshekpuk Lake Caribou Habitat Area

K-6 Coastal Area: Special restrictions on facility development in coastal waters and within 1 mile of coast

K-7 Colville River Special Area raptor protection and CRSAMP Protection 2

K-8a Pik Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited

K-9 Caribou Movement Corridors: Permanent oil and gas facilities, with the exception of pipelines, prohibited

K-10 Southern Caribou Calving Area: Permanent oil and gas facilities, with the exception of pipelines, prohibited

K-12 Western Arctic Herd Habitat Area

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Oil & Gas Leasing and Infrastructure

Unavailable for leasing and no new non-subsistence infrastructure

Unavailable for leasing

Land Status

Native Patent or IC

Native Selected

NPR-A Boundary

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160°W 155°W 150°W 70°N 68°N

MAP 2-3
Alternative
C
Land Allocations

Oil & Gas Leasing and Infrastructure

Unavailable for Leasing and no exploratory drilling or non-subsistence permanent infrastructure, except for valid existing NPR-A leases and for a subsurface pipeline across Wainwright Inlet/Kuk River.

Note: All other BLM-managed lands would be available for leasing and for applications for permanent infrastructure in support of offshore oil and gas development.

Leasing deferred to stated year

Special Areas

- Colville River
- Teshekpuk Lake
- Utukok River Uplands
- Peard Bay
- Kasegaluk Lagoon

Wild & Scenic Rivers

- Wild & Scenic Rivers

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

0 6 12 24 36 48 Miles

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referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS

MAP 2-3 K
Alternative
C
K Stipulations

- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipelines and road crossings.
- K-2 Deep Water Lakes: No permanent or temporary facilities on lakes Only essential permanent facilities within 1/4 mile of lakes
- K-3a Teshekpuk Lake not available for oil and gas leasing; permanent oil and gas facilities prohibited onshore within 1/4 mile of Teshekpuk Lake; permanent oil and gas facilities, except pipelines, prohibited in indicated portions of Ts. 14-15 N., R. 9 W. and T. 15 N. 8 W. U.M. greater than 1/4 mile from Teshekpuk Lake (Stipulation K-3)
- K-3b Kogru River: Special stipulations for exploration and development
- K-4a Goose Molting Lakes: Permanent oil and gas facilities, with the exception of pipelines, prohibited within lakes and 1 mile onshore
- K-4a Goose Molting Area
- K-4b Brant Survey Area
- K-5 Teshekpuk Lake Caribou Habitat Area
- K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
- K-6 Coastal Area: Special restrictions on facility development within 1 mile of coast
- K-7 Colville River Special Area raptor protection
- K-8a Pik Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
- K-9 Caribou Movement Corridors: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- K-10 Southern Caribou Calving Area: Permanent oil and gas facilities, with the exception of pipelines, prohibited
- K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract
- K-12 Western Arctic Herd Habitat Area

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

Oil & Gas Leasing and Infrastructure

- Unavailable for leasing and no new non-subsistence infrastructure

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
Cape Simpson
Point Franklin
Point Belcher
Peard Bay
Admiralty Bay
Dease Inlet
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Wainwright
Atqasuk
Teshekpuk Lake
Atigaru Point
Oliktok Point
Nuiqsut
Umiat
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Iyisaruk
Utukok River
Kaolak River
Avalik River
Meade River
Awuna River
Colville River
Killigwa River
Etivluk River
Itkillik River
Kogru River
Ikpikpuk River
Topagoruk River
Kealok Creek
Judy Creek
Fish Creek
Ublutuich River
Kachemach River
Oumalik River
Oumalik Creek
East Fork Etivluk River
70°N
68°N
160°W
155°W
150°W

MAP 2-4
Alternative D
Land Allocations

Oil & Gas Leasing and Infrastructure

All BLM-managed subsurface would be available for leasing

Leasing deferred to stated year

Note: All BLM-managed lands would be available for applications for permanent infrastructure in support of offshore oil and gas development.

Special Areas

- Colville River
- Teshekpuk Lake
- Utukok River Uplands
- Kasegaluk Lagoon

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS

ARCTIC OCEAN

Chukchi Sea

Beaufort Sea

Barrow

Point Barrow

Tangent Point

Cape Simpson

Point Franklin

Point Belcher

Peard Bay

Admiralty Bay

Smith Bay

Pt. Pt.

Cape Halkett

Harrison Bay

Atigaru Point

Oliktok Point

Kuparuk

Alpine

Nuiqsut

Atqasuk

Icy Cape

Kasegaluk Lagoon

Teshekpuk Lake

Umiat

KASEGALUK LAGOON SPECIAL AREA

2014

TESHEKPUK LAKE SPECIAL AREA

2018

UTUKOK RIVER UPLANDS SPECIAL AREA

COLVILLE RIVER SPECIAL AREA

Colville River

Utukok River

Kasegaluk Lagoon

Teshekpuk Lake

160°W

155°W

150°W

70°N

68°N

MAP 2-4 K
Alternative
D
K Stipulations

- K-1 River: No permanent or temporary facilities in stream bed. No permanent facilities within listed distance from river except essential pipeline and road crossings
- K-2 Deep Water Lakes: No permanent or temporary facilities on lakes. Only essential permanent facilities within 1/4 mile of lakes
- K-4a Goose Molting Area
- K-4b Brant Survey Area
- K-5a Teshekpuk Lake Caribou Habitat Area
- K-5b Caribou Study Area
- K-6 Coastal Area: Special restrictions on facility development within 3/4 mile of coast
- K-8a Pik Dunes: Surface structures, except approximately perpendicular pipeline crossings and ice pads, are prohibited
- K-11 Lease Tracts with surface occupancy limited to a maximum of 300 acres per tract (B, C)
- K-12 Western Arctic Herd Habitat Area

Oil & Gas Leasing and Infrastructure

All BLM-managed lands would be available for leasing and for application for permanent infrastructure

Land Status

- Native Patent or IC
- Native Selected
- NPR-A Boundary

0 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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National Petroleum Reserve - Alaska
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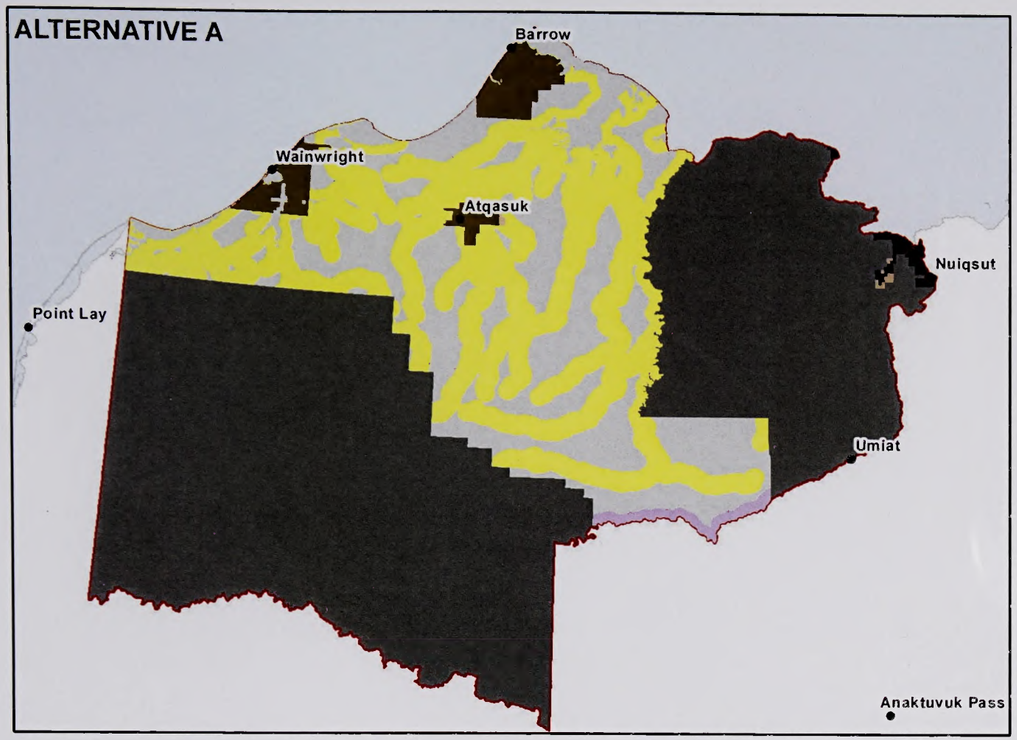
ALTERNATIVE A



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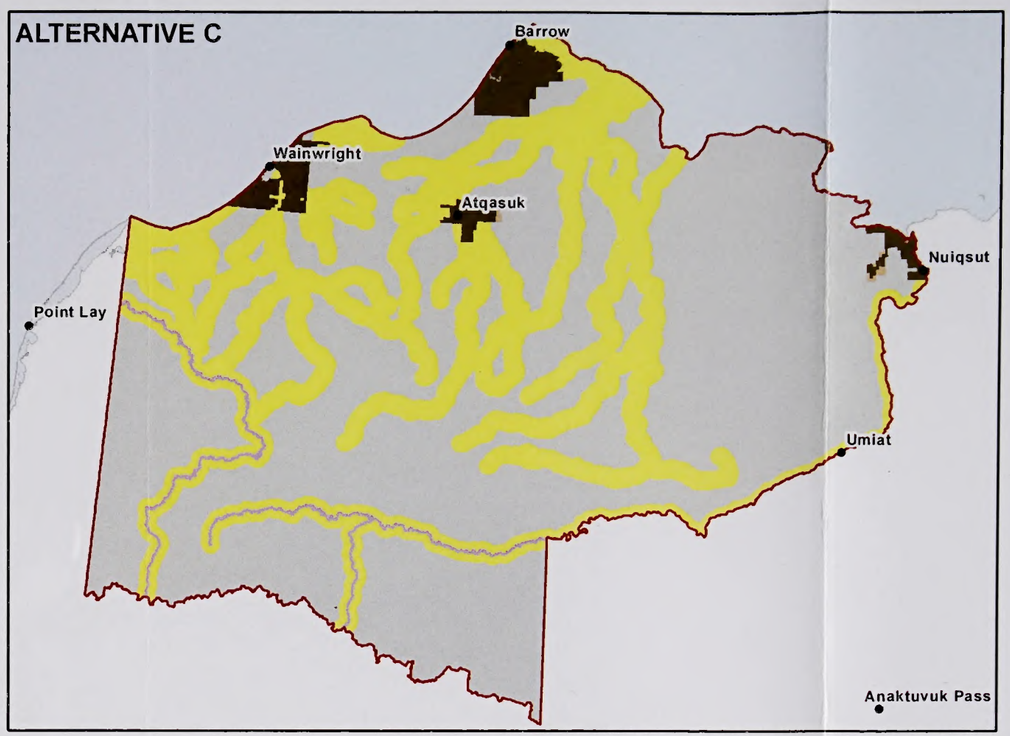

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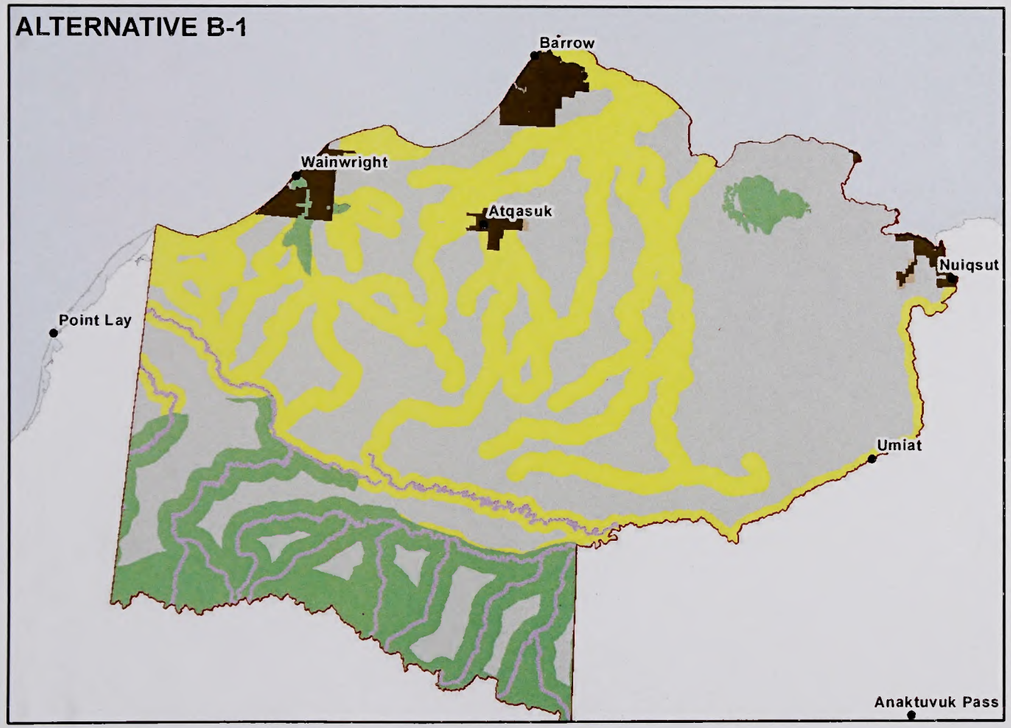

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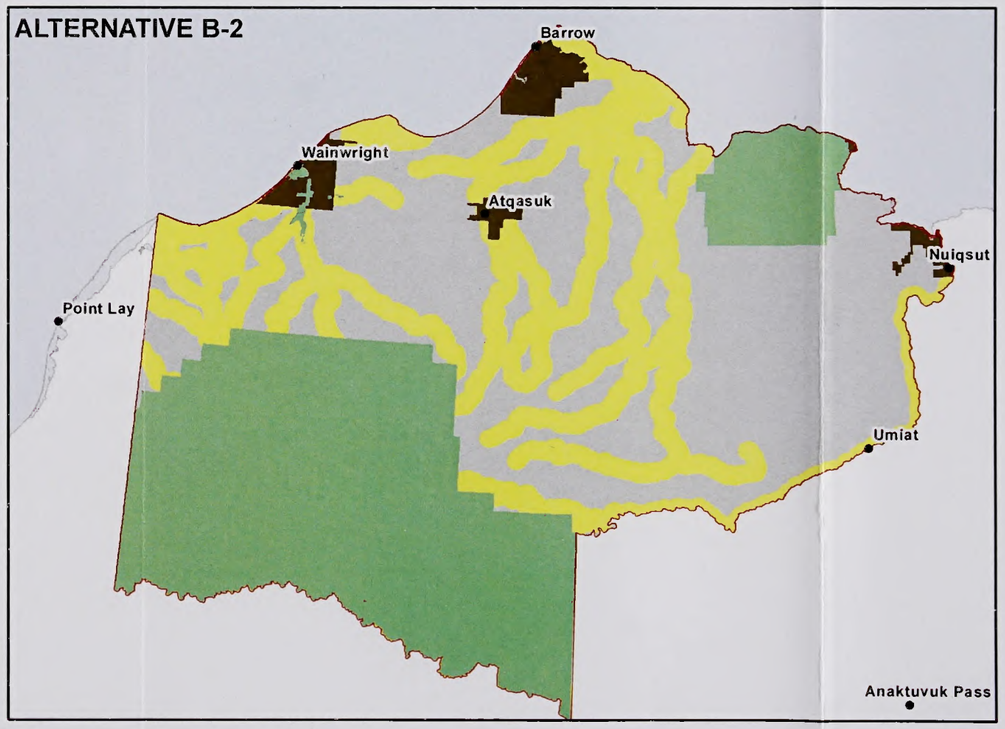

Map 2 - 5

Visual Resource Management (VRM) - Management Classes

Source: BLM, 2011

VRM Management Class

- Class I
- Class II
- Class III
- Class IV
- No Management Classes Delineated

In Alternative D, all BLM-managed lands would be Class IV

Land Status

- Native Patent or IC
- Native Selected

NPR-A Boundary

0 20 40 60 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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Map 3.2.4-1
Major Rivers, Hydrologic Units and Physiographic Provinces

Sources: Wahrhaftig, 1965
USGS- NHD, 2010
USDOI-BLM & USGS, 2010

- Stream Gauges
- Physiographic Provinces
- Watershed Boundary 4th level HUC (8-digit)
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160°W 155°W 70°N 68°N

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Northwest Coast
Tangent Point
Dease Inlet
Cape Simpson
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Point Franklin
Point Belcher
Peard Bay
Admiralty Bay
Wainwright
Inaru River
Kugrua River
Admiralty Bay-Dease Inlet
Atqasuk
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Ikpikpuk River
Harrison Bay
Nuiqsut
Meade River
Kuk River
Arctic Coastal Plain Province
Arctic Foothills Province
Utukok River
Kokolik River
Lower Colville River
Umiat
Awuna River
Maybe Creek
Colville River
Upper Colville River
Arctic Foothills Province
Arctic Mountains Province
Killik River
Chandler-Anaktuvuk Rivers
Anaktuvuk Pass
Middle Noatak River

Map 3.2.5-1

Bedrock Geology

Sources: Beikman, 1980

Bedrock Geology Unit within NPR-A

JP	Jurassic, Triassic, and Permian Rocks
JPvm	Jurassic, Triassic, and Permian Mafic Volcanic Rocks
KJ	Cretaceous and Jurassic Rocks
M	Mississippian Rocks
MzPz	Mesozoic and Paleozoic Rocks
TR	Triassic Rocks
lK	Lower Cretaceous
lKc	Lower Cretaceous Continental Deposit
uK	Upper Cretaceous
uKc	Upper Cretaceous Continental Deposit
uT	Upper Tertiary Rocks

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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Map 3.2.5-2

Mineral Terranes & Alaska Resource Data File (ARDF) Locations

Sources: ARDF- USGS, 2008.
Terranes- Resource Data Inc., Alaska Earth Science, and US Bureau of Mines.

Alaska Resources Data File

- Occurrence
- Prospect
- Mineral Terrane
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

170°W 165°W 160°W 155°W 150°W 145°W

72°N

ARCTIC OCEAN

Chukchi Sea

Beaufort Sea

Barrow Arch

Barrow

Point Franklin

Point Barrow

Wainwright

Atqasuk

Meade Arch

Point Lay

Herald Thrust

Point Hope

Brooks Range Thrust

Kivalina

Noatak

Simpson

Pitt Point

Oliktok Point

Prudhoe Bay

Deadhorse

Nuiqsut

Umiat

Arctic Village

Wiseman

Coldfoot

70°N

68°N

165°W 160°W 155°W 150°W

Map 3.2.6-1

Major Sedimentary Basins and Tectonic Features

Sources:

- Arctic Alaska Basin (Ellesmerian Strata, Devonian-Jurassic)
- Colville Basin [>3 km] (Brookian Strata, Cretaceous)
- Geologic Arch
- Thrust Fault System
- Arctic Alaska Basin Sediment Supply
- Colville Basin Sediment Supply
- NPR-A Boundary

0 20 40 60 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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National Petroleum Reserve - Alaska

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Map 3.2.6-2

Oil & Gas Fields and Wells of the North Slope

Sources: AOGCC, 2011
BOEMRE & AK-DNR

Selected NPR-A Well Locations

- Gas well, U S NAVY
- Oil Well, Husky
- Oil Well, Private industry
- Oil Well, US Navy
- Chukchi Wells
- Plugged & Abandoned
- Anticlines

Oil & Gas Fields

- Gas
- Oil
- Oil and Gas

Active Oil and Gas Units

- Not Producing
- Producing

- BOEMRE OCS Lease Tracts 2002 -2007
- Trans-Alaska Pipeline
- Dalton Highway
- Well Locations
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
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ARCTIC OCEAN
Beaufort Sea
Chukchi Sea

POPCORN
CRACKERJACK
BURGER
DIAMOND
KLONDIKE

East Barrow
South Barrow
Barrow
Walakpa
IKO 1
TULAGEAK 1
W DEASE 1
Simpson Seeps
E SIMPSON TEST WELL 1
CAPE HALKETT 1
KUYANAK 1
PEARD TEST WELL
Wainwright
KUGRUA 1
S MEADE 1
Atqasuk
IKPIKPUK 1
TUNALIK 1
Meade
Point Lay
KOLUKTAK 1
Square Lake
Wolf Creek
SEABEE 1
Umiat
Gubik
East Umiat
AWUNA 1
Noatak

Colville River
see Inset
Tesheskpuk Lake
Bear Tooth
Nuiqsut
Greater Mooses Tooth

Beechey Point
Milne Point
Nikaitchuq
Ooogurruk
Dewline
Liberty
Sandpiper
Duck Island
Point Thomson
Hammerhead
Kuvlum
Badami
Flaxman Island
Stinson
Sourdough
Yukon Gold
Mikkelsen
Hemi Springs
Kuparuk River
Rock Flour
Arctic Fortitude
Prudhoe Bay
Arctic National Wildlife Refuge

Inset- NE NPRA
N KALIKPIK 1
Colville River
Bear Tooth
S HARRISON BAY 1
W FISH CK 1
SCOUT 1
LOOKOUT 1
N INIGOK 1
CARBON 1
SPARK 1A
MOOSE TOOTH C
Greater Mooses Tooth

165°W 160°W 155°W 150°W 145°W
72°N 70°N 68°N

Map 3.2.8-1

Soils

Source: Natural Resource Conservation Service 1979, 1994.

Soil Unit within NPR-A

IQ2	Typic Histoturbels
IQ6	Typic Histoturbels - Typic Fibristels
IQ21	Typic Aquiturbels - Typic Psammoturbels
IQ8	Typic Histoturbels- Typic Aquiturbels
MB2	Typic Molliturbels - Typic Aquiturbels
IQ24	Typic Aquiturbels - Typic Gelorthents
RM1	Rough mountainous land
MA3	Typic Aquiturbels - Typic Molliturbels
MA3	Typic Aquiturbels - Typic Haplogelolls
IQ22	Fluvaquentic Aquorthels

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS

160°W 155°W 70°N 69°N

ARCTIC OCEAN Chukchi Sea Beaufort Sea

Point Barrow Barrow Tangent Point Dease Inlet Cape Simpson Smith Bay Pitt Point Cape Halkett Harrison Bay Atigaru Point Point Franklin Point Belcher Peard Bay Admiralty Bay Wainwright Kugrua River Imuru River Atqasuk Alaktak River Teshekpuk Lake Icy Cape Lagoon Kasegaluk Tunalik River Ivisaruk Kuk River Ukokok River Kaolak River Avalik River Itkillik River Ipnavaruk River Kealuk Creek Inigok Creek Fish Creek Inay Creek Chipp River Nuiqsut Kikiakrorak River Kogosukruk River Meade River Awuna River Maybe Creek Colville River Umiat Anaktuvuk Pass East Fork Oak Creek Etivluk River

IQ6 IQ21 IQ2 IQ8 IQ24 MB2 RM1 MA3 MA2 IQ7 RM2 IQ22 MA1

Map 3.2.9-1

Surficial Geology

Sources: Karlstrom 1964

Surficial Geology Unit within NPR-A

- Qcb — Modem coastal beach deposits (sand to silt)
- Qcc — Older coastal deposits of alluvial and marine sediments (sand to silt)
- Qe — Silt more then 5-feet thick (silt)
- Qfp — Modem floodplains (sand to silt)
- Qm1 — Remnants of highly modified glacial moraines and associated drift
- Qm3 — Prominent, slightly modified, glacial moraines and associated drift
- Qra — Dominantly course rubbly deposits associated with steep-sloped mountains with higher percentage of bedrock exposures (talus slopes with course grained sand to boulders)
- Qrb — Course and fine-grained deposits associated with moderate to steep-sloped mountains and hills with bedrock exposures largely restricted to upper slopes and rubble on crestlines (course grained sand to boulders)
- Qrc — Fine-grained deposits associated with gently sloping hills with rare bedrock exposures (sand to silt)

NPR-A Boundary

0 6 12 24 36 48 Miles

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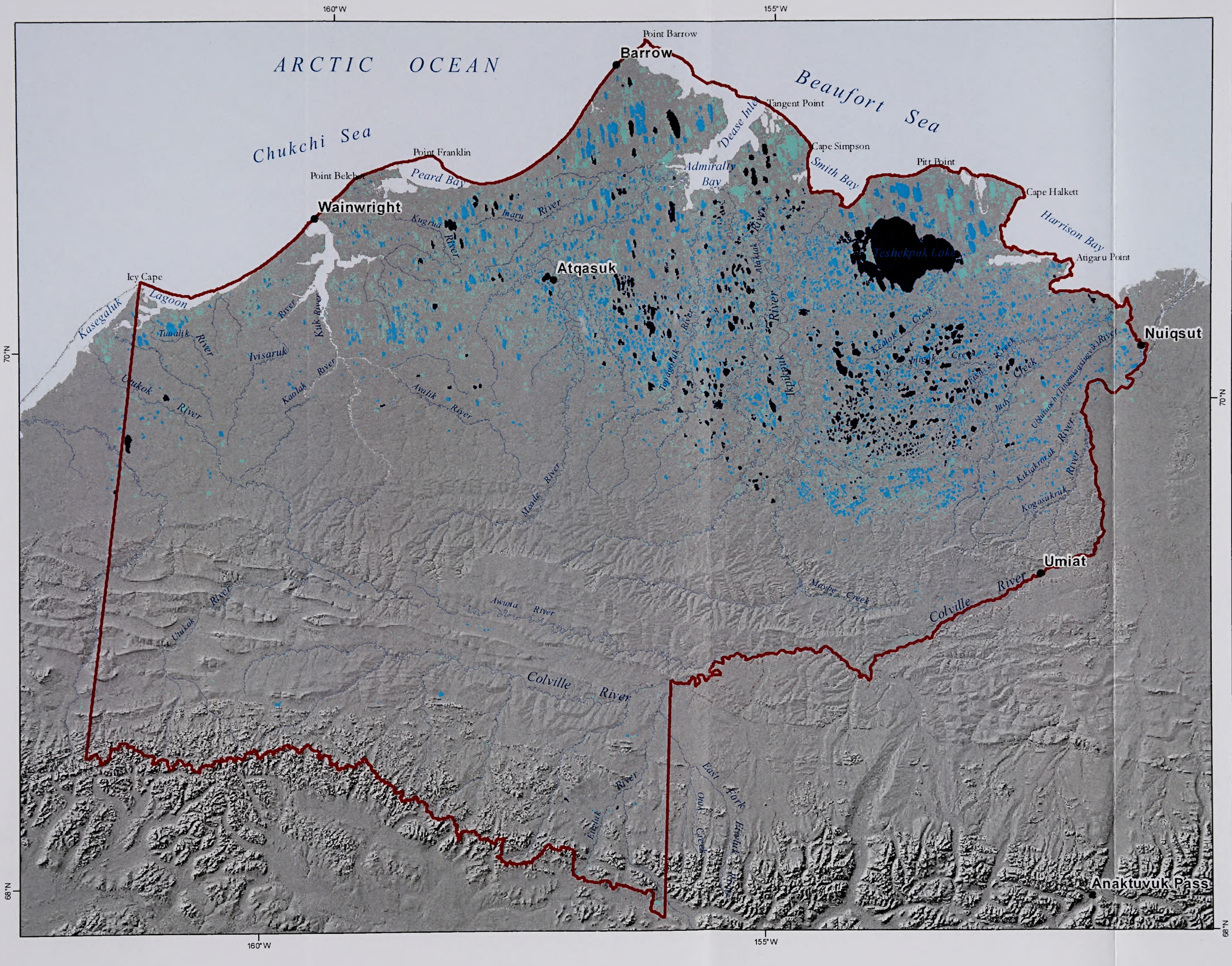
Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS



Map 3.2.10-1

Lake Depth

Source: Mellor, 1985

Lake Depth (m)

- < 1.6 m
- 1.6 m - 4 m
- > 4 m

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
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Map 3.2.11-1
Existing Hazards

Source: BLM, 2011

Existing Hazard Locations

- Landfill
- Currently Used
- Formerly Used Defense Site
- Privately Owned
- Reserve Pit

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

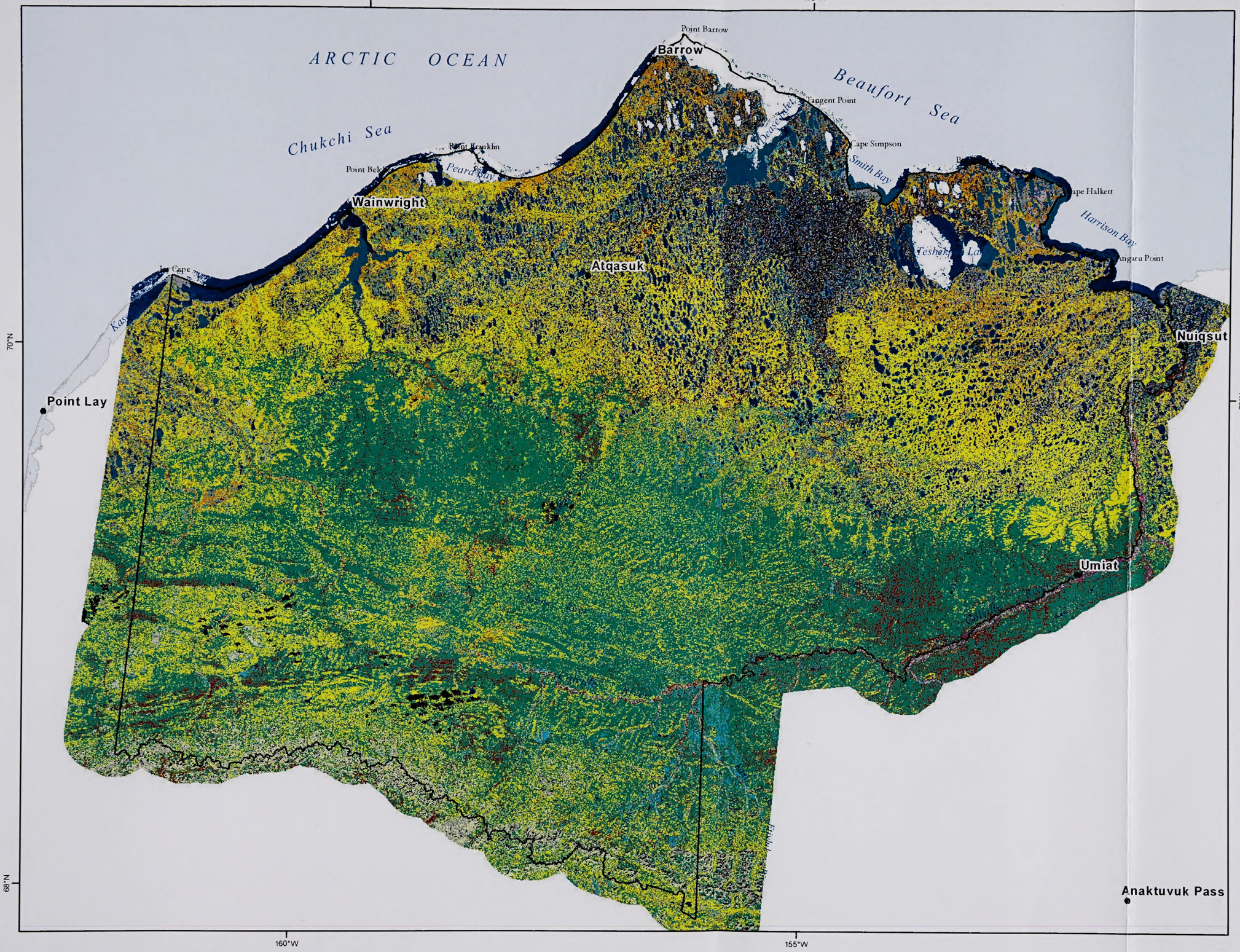
Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160° W
155° W
70° N
68° N

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow (POW - MAIN)
Barrow
Point Barrow
Skull Cliff Loran
Skull Cliff Test Core Drum Cache
Peard Bay (LIZ - C) (Landfill)
Walakpa #1
Tulageak
West Dease
Cape Simpson (POW - A) (North Slope Borough)
Point Lonely (POW - 1) (2 Landfills)
East Simpson #2
East Simpson #1
Kuyanuk
Point Franklin
Point Belcher
Peard Bay
Admiralty Bay
Wainwright
Wainwright (LIZ - 3) (2 Landfills)
Peard
Kogrua
South Meade
South Simpson
NW Teshekpuk Lake (NARL/USGS)
Teshekpuk Lake
Cape Halkett
Kogru (POW-B) (3 Landfills)
Atigaru Point
North Kalikpik
Atqasuk
Ikpikpuk
South Harrison
Icy Cape
Icy Cape (LIZ-B)
Lagoon
Tunalik
West Fish Creek
North Inigok
Nuiqsut
Walakpa #2
Inigok
Koluktak
Upper Meade Drum Cache (Navy)
Umiat Well 9 (Navy)
Sea Bee
Umiat Landfill (USACE)
Umiat
Awuna
Driftwood (Navy)
Brady (NARL)
No Luck Lake (NARL)
Anaktuvuk Pass
Kasegaluk Lagoon
Tunalik River
Kuk River
Ivisaruk
Kaolak River
Utukok River
Avalik River
Meade River
Awuna River
Maybe Creek
Colville River
Etivluk River
Oluk Creek
East Fork Etivluk River
Kugrua River
Imaru River
Alaktak River
Teshekpuk Lake
Ikpikpuk River
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tingmaasiugvik) River
Kikiakrorak River
Kogosukruk River

Map 3.3.1-1
Vegetation

Source: USDOI BLM - 2002



VEGETATION OVERVIEW

From National Petroleum Reserve - Alaska Earth Cover Classification

- Clear Water
- Turbid Water
- Ice
- Arctophila fulva
- Carex aquatilis
- Flooded Tundra - LCP
- Flooded Tundra - Nonpattern
- Wet Tundra
- Sedge/Grass Meadow
- Tussock Tundra
- Moss/Lichen
- Dwarf Shrub
- Low Shrub
- Tall Shrub
- Sparsely Vegetated
- Dunes/Dry Sand
- Barren Ground Other
- Clouds, Shadows, Bad Pixels

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

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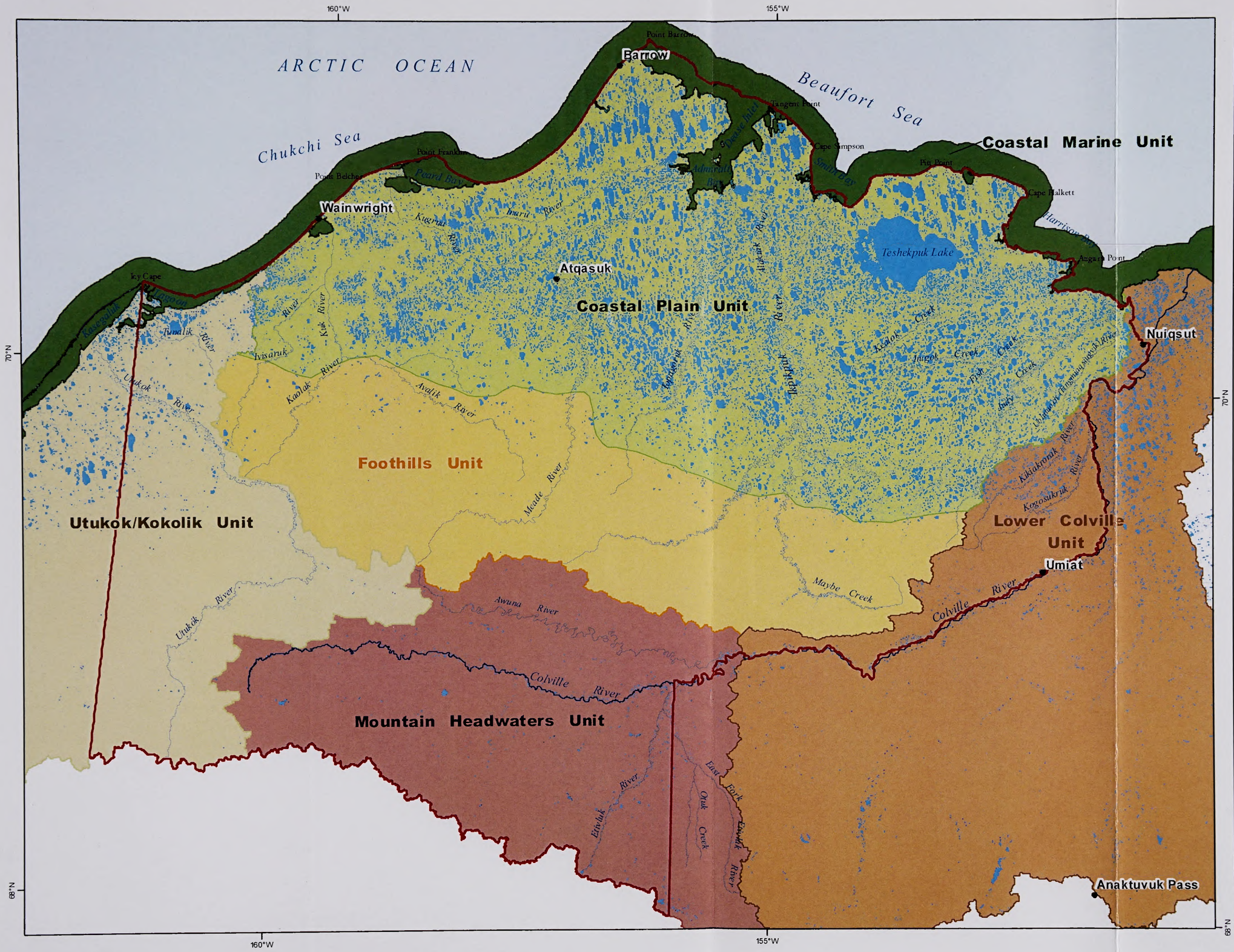
Final IAP/EIS



Map 3.3.4-1

Fish Habitat Units

Source: BLM, 2011

- Fish Habitat Unit
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

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National Petroleum Reserve - Alaska
Final IAP/EIS

Map 3.3.4-2
Anadromous Waters

Sources: ADF&G, 2011.

- Anadromous Waters
- Rivers
- Lakes with anadromous fish present
- Lakes
- NPR-A Boundary

0 6 12 24 36 48 Miles

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referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160°W
155°W
70°N
68°N
ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
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Cape Simpson
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Point Franklin
Point Belcher
Peard Bay
Wainwright
Admiralty Bay
Inaru River
Kugrua River
Atqasuk
Aufeuk River
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Ivisaruk River
Kuk River
Kaolak River
Avalik River
Topagoruk River
Ikpikpuk River
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tingmiuguisiovik) River
Nuiqsut
Meade River
Kikiakrorak River
Kogosukruk River
Umiat
Maybe Creek
Colville River
Awuna River
Unukok River
Colville River
Etivluk River
Otuk Creek
East Fork Etivluk River
Anaktuvuk Pass

Map 3.3.5-1

Glaucous gull Onshore Density

Sources: USFWS - Migratory Bird Management, 2010.

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 1.992 - 4.033
- 0.980 - 1.991
- 0.420 - 0.980
- 0.052 - 0.419
- 0.000 - 0.051

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS

160°W 155°W 70°N 68°N

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
Dease Inlet
Cape Simpson
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Point Franklin
Point Belcher
Peard Bay
Admiralty Bay
Wainwright
Kugrua River
Inaru River
Atqasuk
Atakuk River
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Kuk River
Ivisaruk
Kaolak River
Avalik River
Ipnigoruk River
Ikpikpuk River
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tingmiagagvik) River
Nuiqsut
Kikiakrorak River
Kogosukruk River
Meade River
Umiat
Maybe Creek
Awuna River
Colville River
Utukok River
Etivluk River
East Fork Etivluk River
Oruk Creek
Anaktuvuk Pass

Map 3.3.5-2

Sabine's gull Onshore Density

Sources: USFWS - Migratory Bird Management, 2010.

Estimated Relative Onshore Density (2007-2010)
Birds per Square Kilometer

- 1.311 - 2.926
- 0.665 - 1.310
- 0.310 - 0.664
- 0.031 - 0.309
- 0.000 - 0.030

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160°W
155°W
70°N
68°N
ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
Dease Inlet
Cape Simpson
Admiralty Bay
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Point Franklin
Point Belcher
Peard Bay
Wainwright
Inaru River
Kugrua River
Atqasuk
Alaktak River
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Kuk River
Ikpikpuk River
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Nuiqsut
Ublutuoch (Fingermiagsiktevik) River
Kikiakrorak River
Kogosukruk River
Kaolak River
Avalik River
Meade River
Utukok River
Awuna River
Maybe Creek
Colville River
Umiat
Etivluk River
East Fork Etivluk River
Otuk Creek
Anaktuvuk Pass

Map 3.3.5-3

Arctic Tern Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

ARCTIC TERN

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 0.980 - 1.639
- 0.594 - 0.980
- 0.277 - 0.594
- 0.047 - 0.276
- 0.000 - 0.046

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS

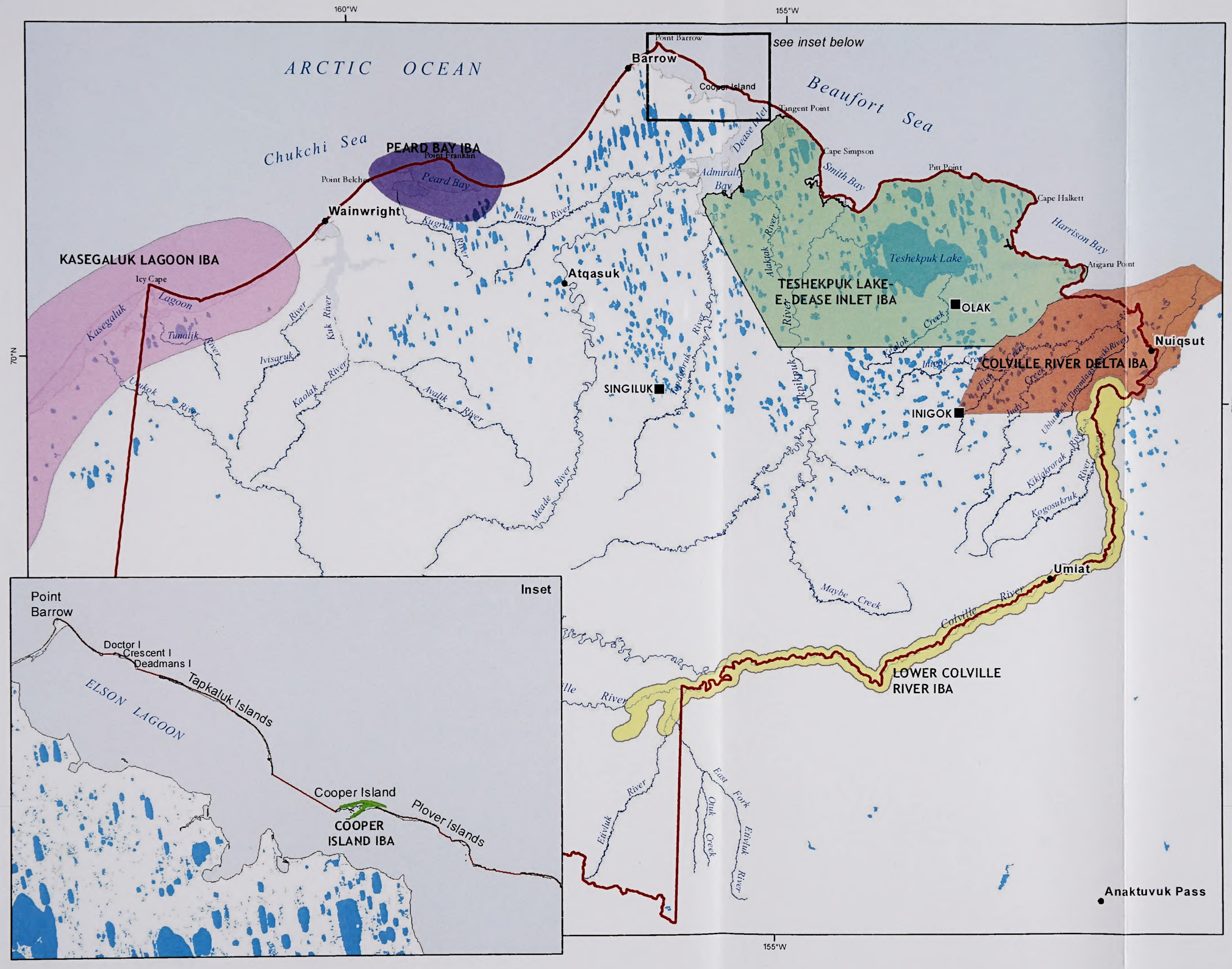
160°W 155°W 70°N 68°N

ARCTIC OCEAN Chukchi Sea Beaufort Sea

Point Barrow Barrow Tangent Point Dease Inlet Cape Simpson Admiralty Bay Smith Bay Pitt Point Cape Halkett Harrison Bay Atigaru Point Point Franklin Point Belcher Peard Bay Wainwright Inaru River Kugrua River Atqasuk Teshekpuk Lake Alaktak River Nuiqsut Icy Cape Lagoon Kaseguluk River Tunalik River Kuk River Ivisaruk River Kaolak River Avalik River Meade River Umkok River Awuna River Colville River Maybe Creek Kikiakrorak River Kuparuk River Ikpikpuk River Fish Creek Judy Creek Ublutuoch (Tingmiaqsigvik) River Umiat Etivluk River Otuk Creek East Fork Etivluk River Anaktuvuk Pass

Map 3.3.5-4
Important Bird Areas

Source: National Audubon Society, 2011.



Map 3.3.5-4

Important Bird Areas

Source: National Audubon Society, 2011.

- Important Bird Areas (IBA)
- Camp Locations
- NPR-A Boundary

0 6 12 24 36 48 Miles

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National Petroleum Reserve - Alaska

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Map 3.3.5-5

Red-throated Loon Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

RED-THROATED LOON

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 0.451 - 1.037
- 0.234 - 0.450
- 0.111 - 0.233
- 0.029 - 0.110
- 0.000 - 0.029

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

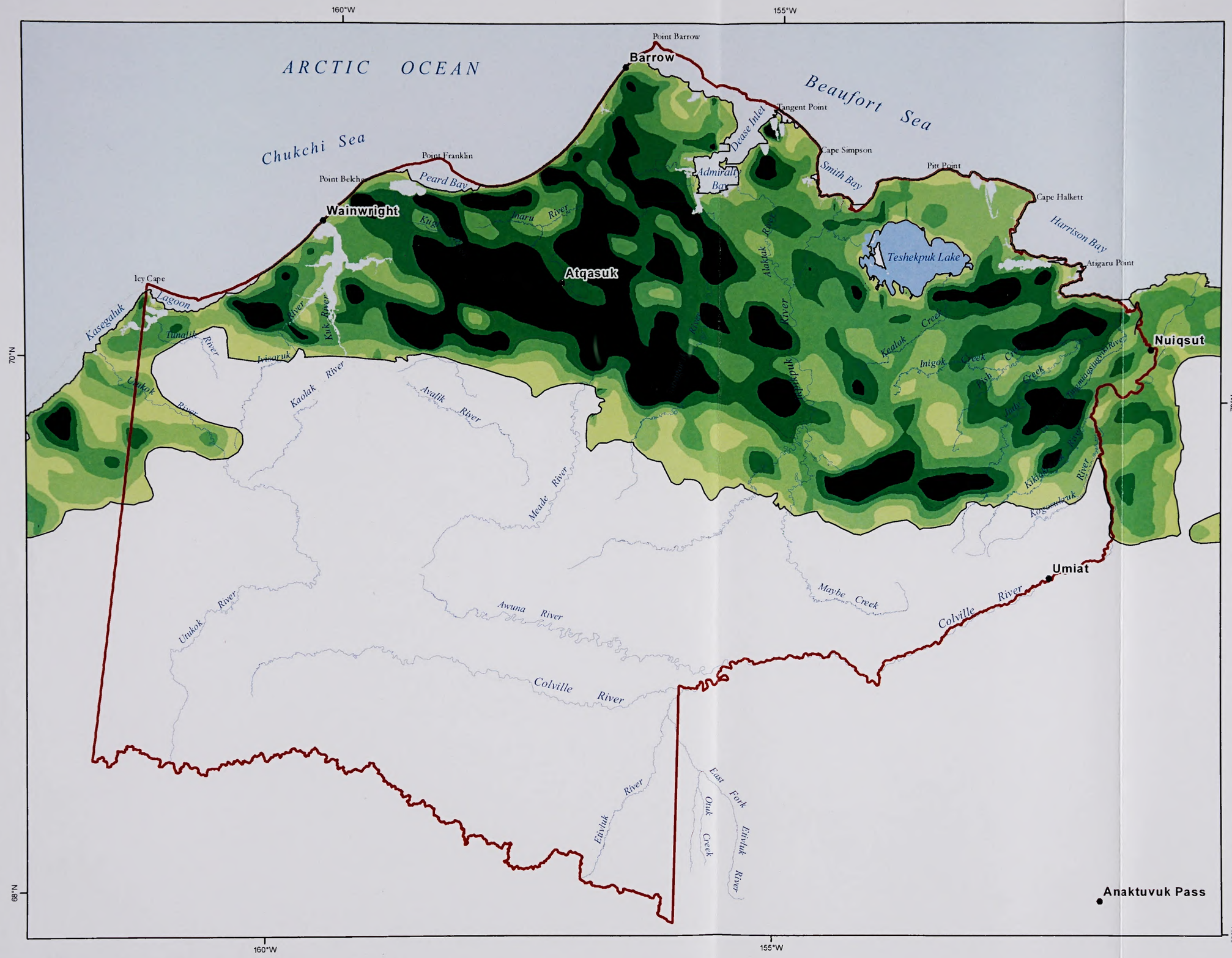
Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS

160°W 155°W 70°N 68°N

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
Dease Inlet
Cape Simpson
Admiralty Bay
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Point Franklin
Point Belcher
Peard Bay
Wainwright
Inaru River
Kugrua River
Atqasuk
Alaktuk River
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Ivisaruk
Kukpowruk River
Kaolak River
Avalik River
Topagoruk River
Ikpikpuk River
Keadlok Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tingmiagsiuvik) River
Kikiakrorak River
Kogosukruk River
Nuiqsut
Umiat
Meade River
Awuna River
Maybe Creek
Colville River
Unukok River
Etivluk River
Oouk Creek
East Fork Etivluk River
Anaktuvuk Pass



Map 3.3.5-6

Pacific Loon Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

PACIFIC LOON

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 1.098 - 1.671
- 0.712 - 1.097
- 0.390 - 0.711
- 0.061 - 0.389
- 0.000 - 0.060

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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National Petroleum Reserve - Alaska

Final IAP/EIS

Map 3.3.5-7

Tundra Swan Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

TUNDRA SWAN

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 0.705 - 1.777
- 0.418 - 0.705
- 0.217 - 0.417
- 0.051 - 0.216
- 0.000 - 0.050

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS

160°W 155°W 70°N 68°N

ARCTIC OCEAN

Chukchi Sea

Beaufort Sea

Point Barrow

Barrow

Tangent Point

Dease Inlet

Cape Simpson

Admiralty Bay

Smith Bay

Pitt Point

Cape Halkett

Harrison Bay

Atigaru Point

Point Franklin

Point Belcher

Peard Bay

Wainwright

Kugua River

Inaru River

Atqasuk

Awuna River

Teshekpuk Lake

Icy Cape

Lagoon

Kasegaluk

Ikpikpuk River

Kuk River

Topagoruk River

Kealok Creek

Inigok Creek

Fish Creek

Judy Creek

Nuiqsut

Tunguma Lake

Tunguma River

Kikiakrorak River

Kogosukruk River

Ivisaruk

Kaolak River

Avalik River

Meade River

Umiat

Maybe Creek

Colville River

Utukok River

Awuna River

Colville River

Etivluk River

Ohuk Creek

East Fork Etivluk River

Anaktuvuk Pass

Map 3.3.5-8

Brant Onshore Density and Colonies

Sources: USFWS - Migratory Bird Management, 2010 & ABR, 2007.

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 2.292 - 5.448
- 0.989 - 2.291
- 0.367 - 0.988
- 0.030 - 0.366
- 0.000 - 0.029

Survey Area Boundary

Brant Colonies (1995 - 2006)

Year with Greatest Number of Nests Displayed

- < 12
- 12 - 45
- 46 - 85

NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

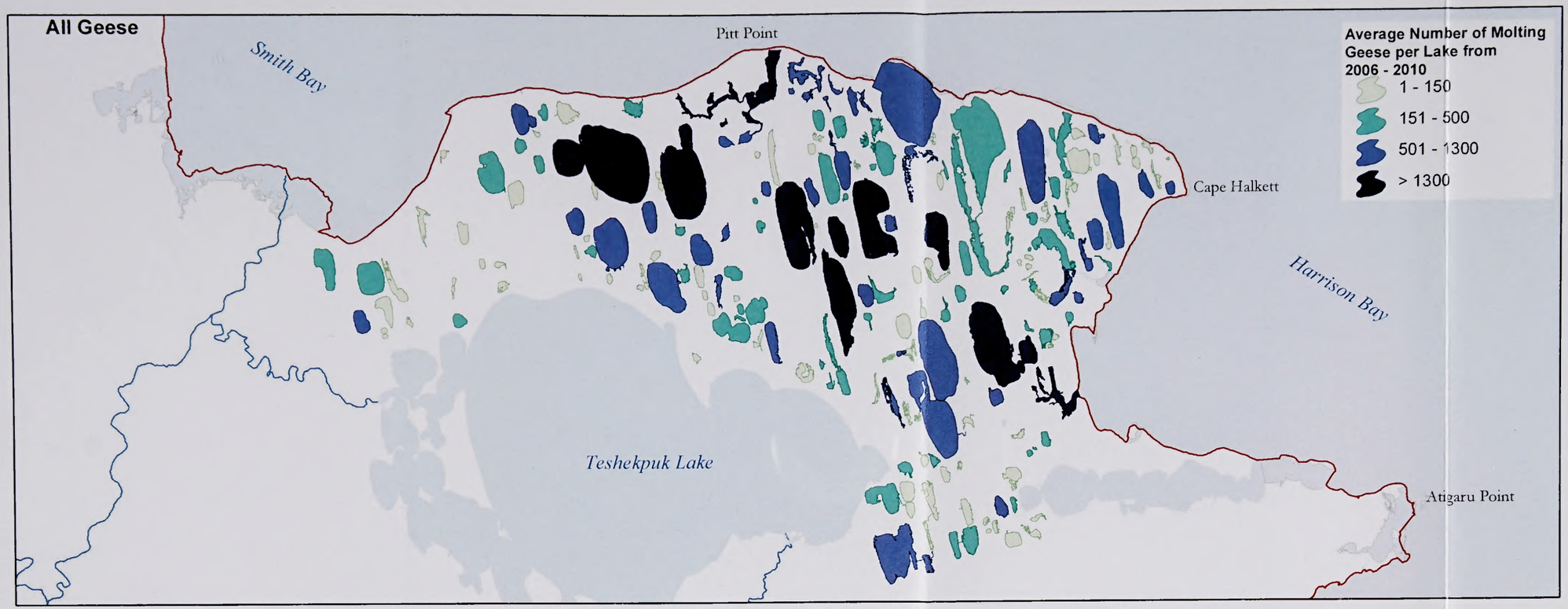
Bureau of Land Management - Alaska

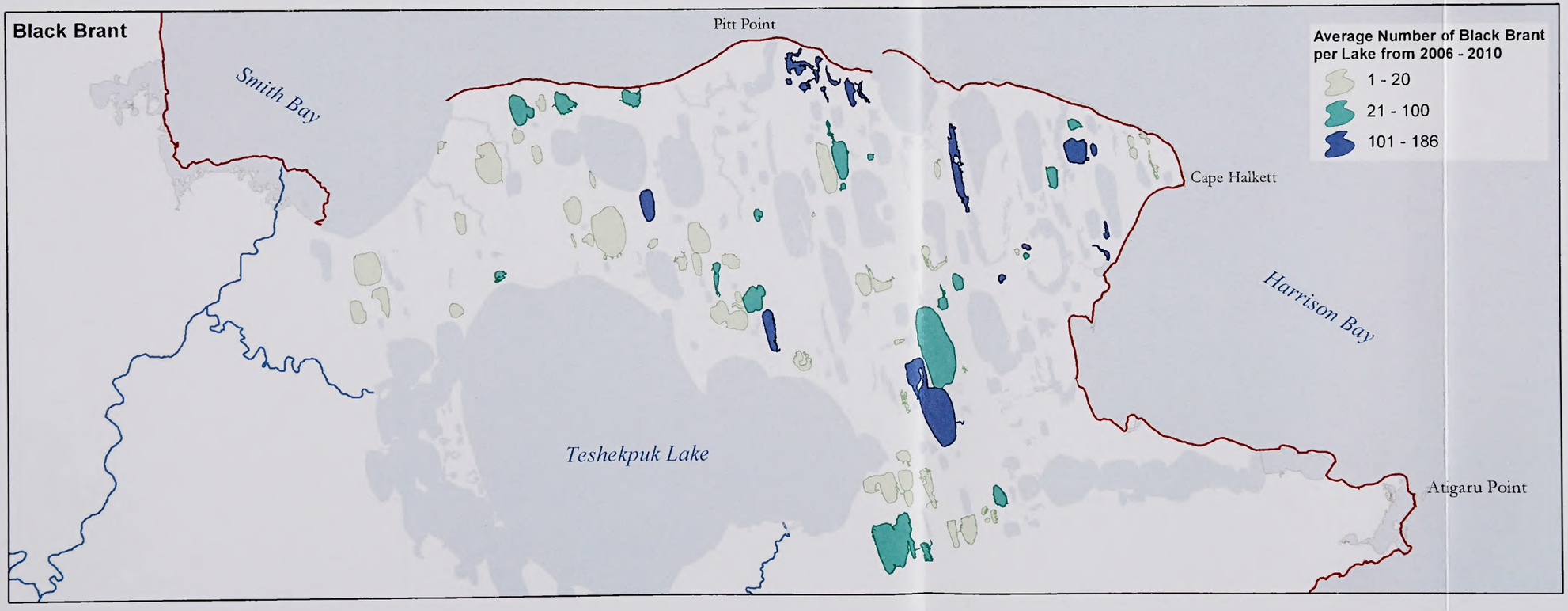
National Petroleum Reserve - Alaska

Final IAP/EIS

160° W 155° W 70° N 68° N

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Point Franklin
Point Belcher
Peard Bay
Wainwright
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Kuk River
Kugrua River
Inaru River
Atqasuk
Dease Inlet
Pingent Point
Cape Simpson
Smith Bay
Admiralty Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Teshekpuk Lake
Alaktak River
Nuiqsut
Topagoruk River
Ikpikpuk River
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tinmiaqsivik) River
Kikigkrorak River
Kogosukruk River
Kaolak River
Avalik River
Maide River
Unukok River
Awuna River
Maybe Creek
Colville River
Umiat
Itkillik River
East Fork Itkillik River
Ohuk Creek
Anaktuvuk Pass





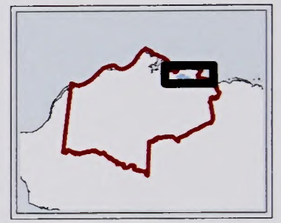
Map 3.3.5-9

Molting Goose* and Black Brant Distribution in Surveyed Lakes 2006 - 2010

Source: USFWS - Migratory Bird Management, 2010

*Black brant, canada goose and white-fronted goose numbers combined

NPR-A Boundary



0 5 10 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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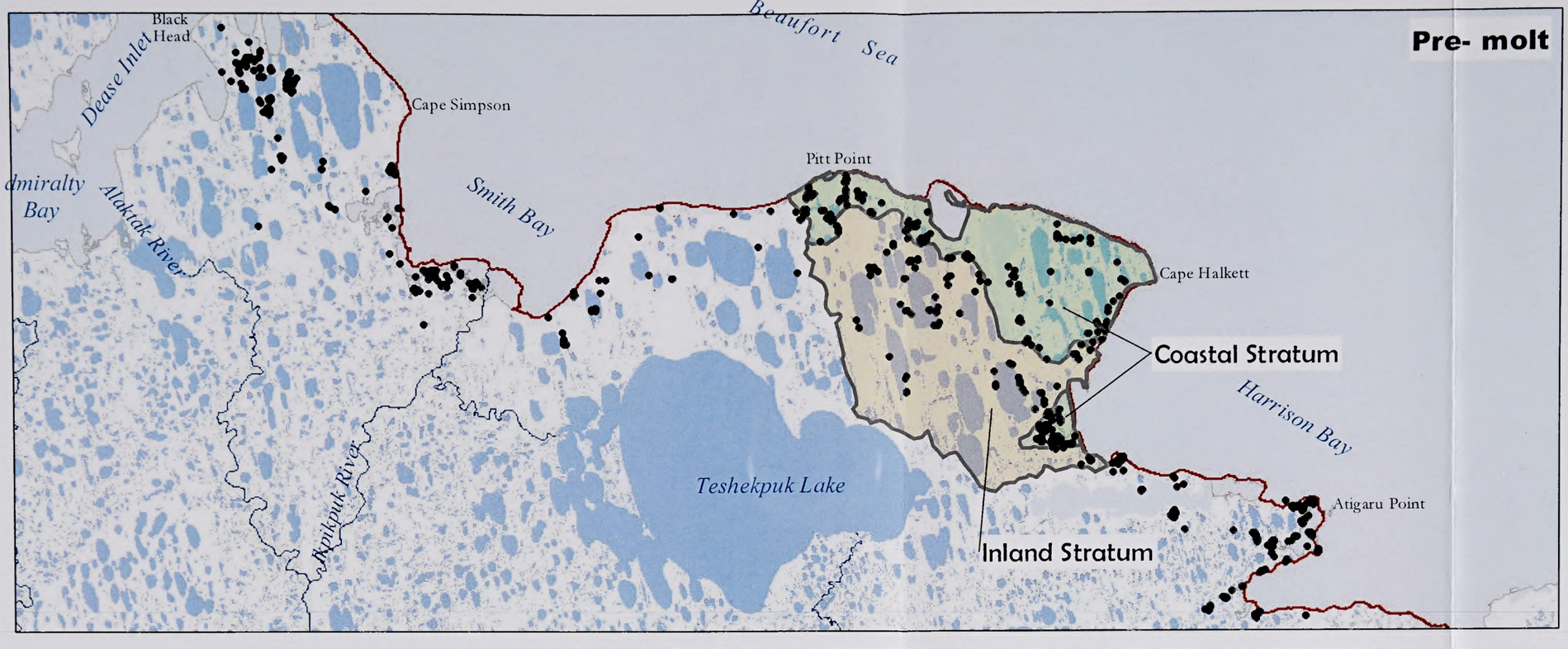
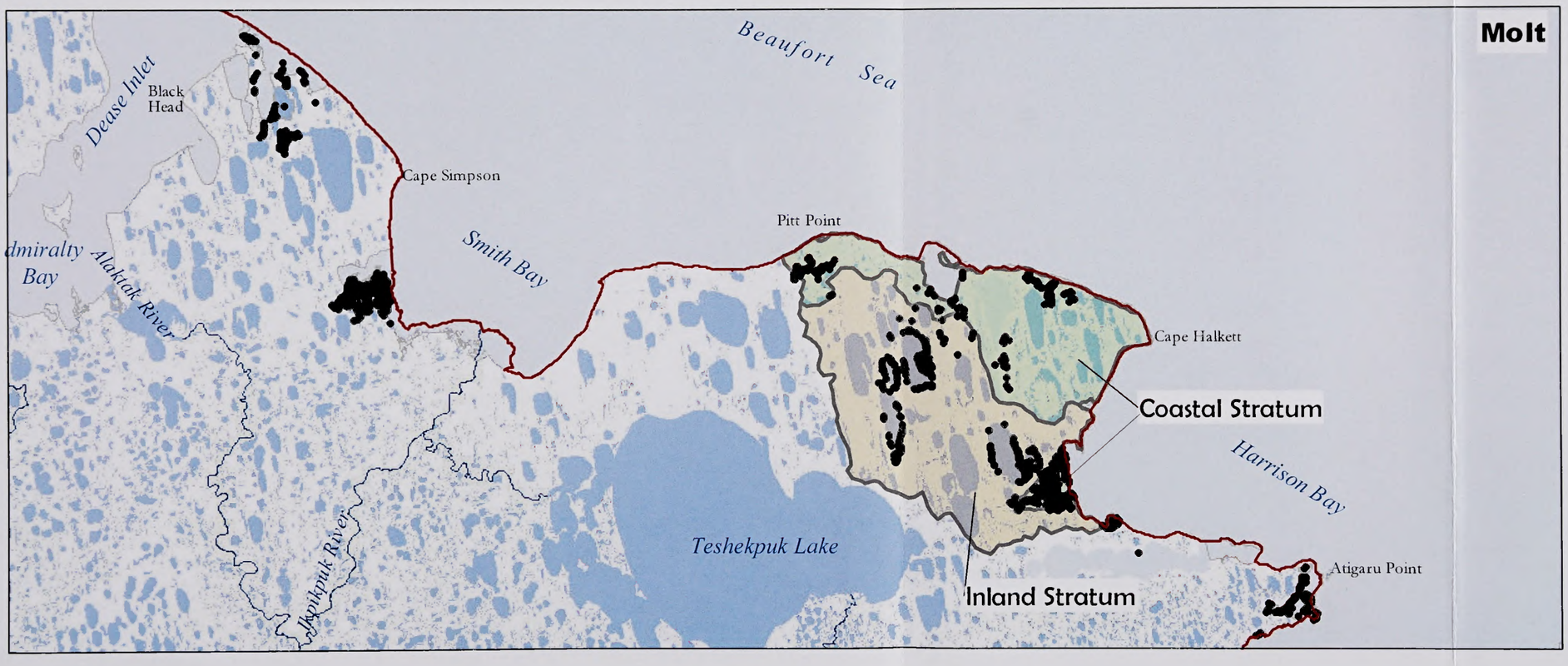




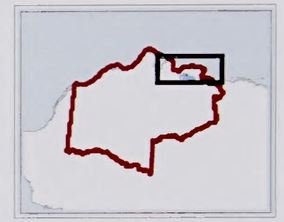
Map 3.3.5-10

Black Brant Locations Pre-Molt and Molt

Source: USGS, 2010

BLACK BRANT

- Locations from GPS Transmitter-marked brant Summers 2007 & 2008
- Stratum Boundary
- NPRA- Boundary



0 5 10 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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National Petroleum Reserve - Alaska

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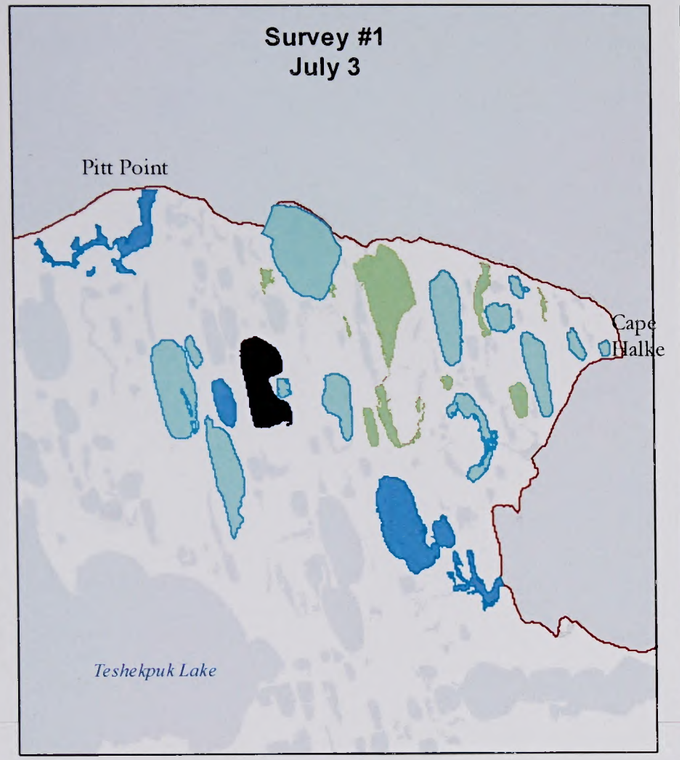

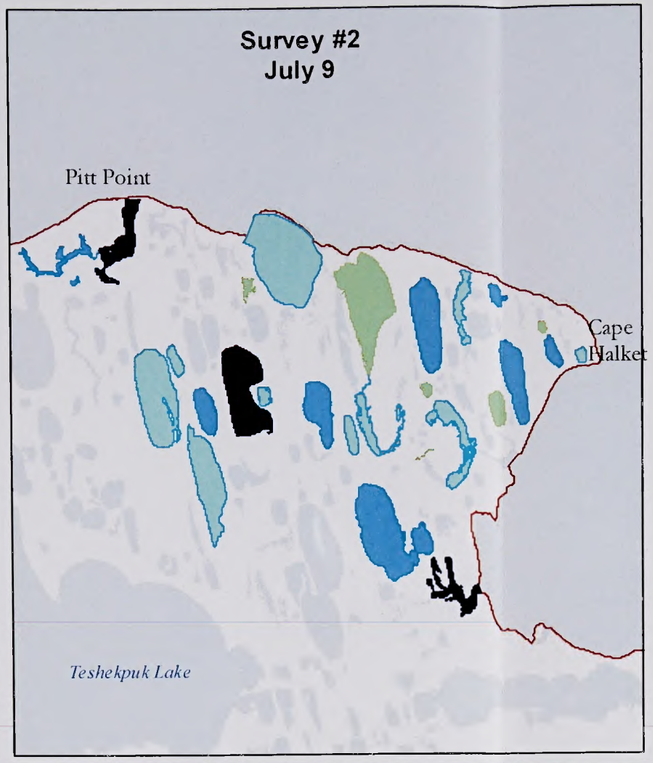

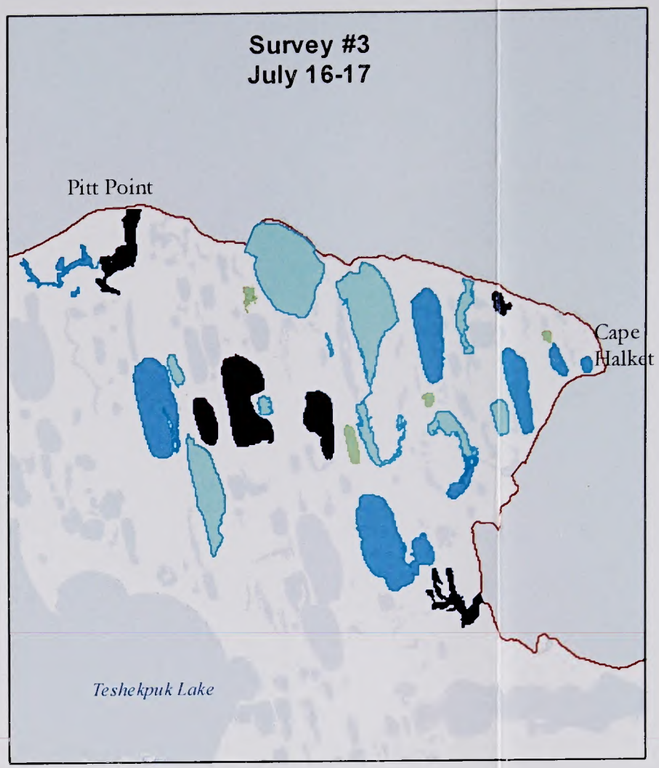

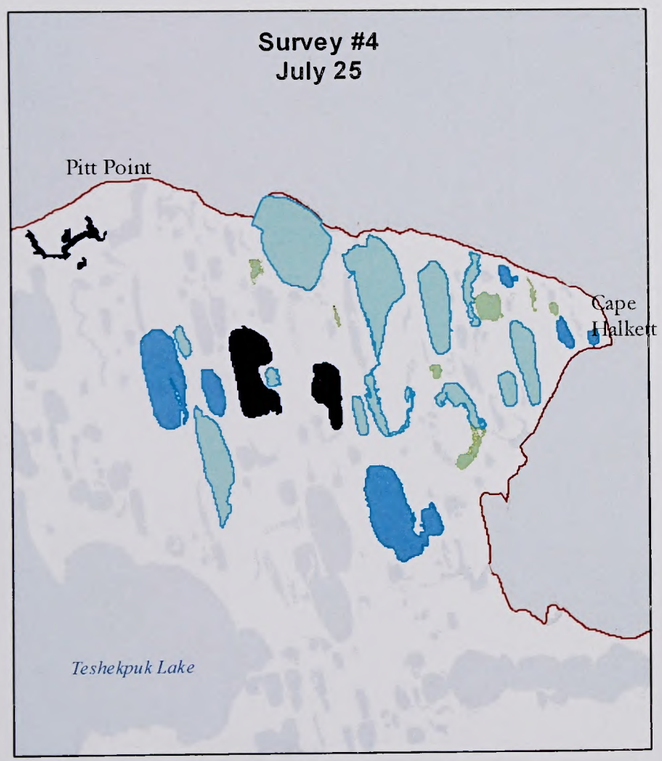

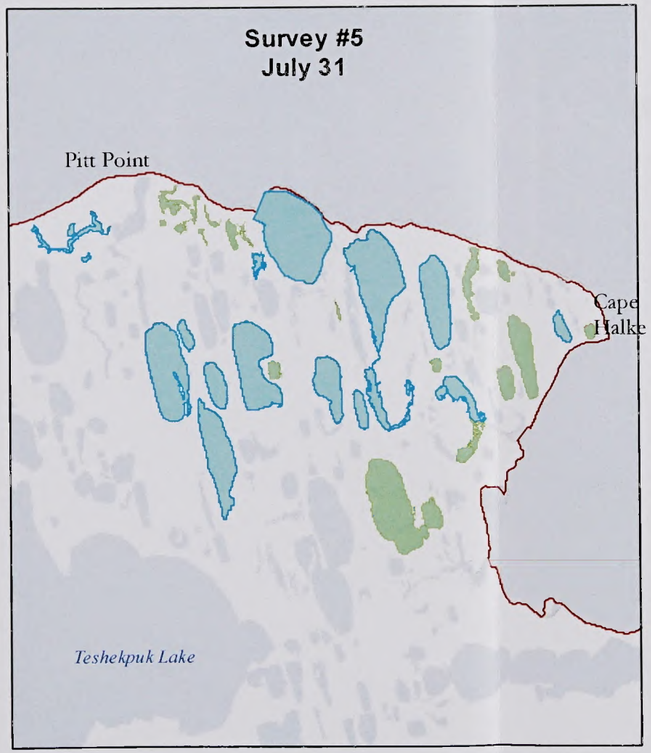

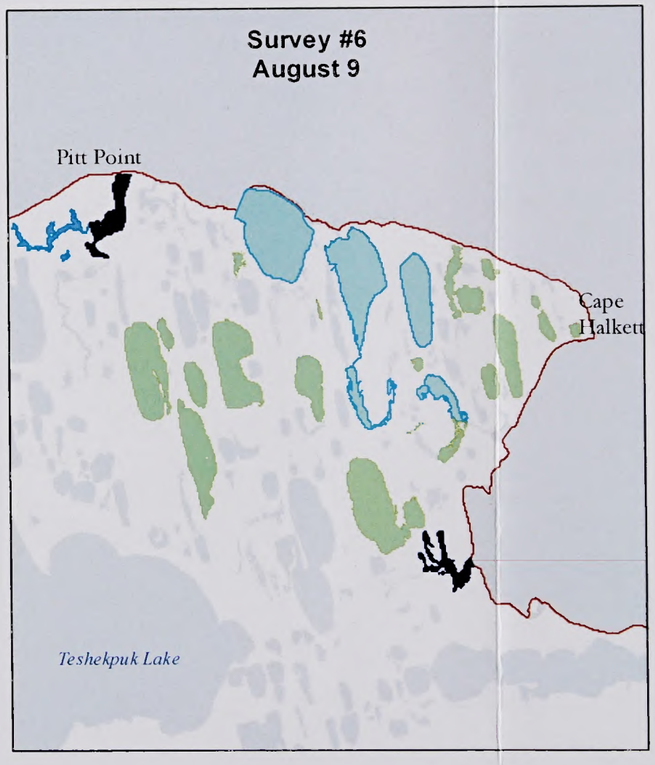

Map 3.3.5-11

Brant Distribution in Surveyed Lakes - 2007

Source: USGS, 2010

Number of Brant per Lake

- 1 - 100
- 101 - 500
- 501 - 1,000
- 1,001 - 2,946

NPR-A Boundary

0 5 10 Miles

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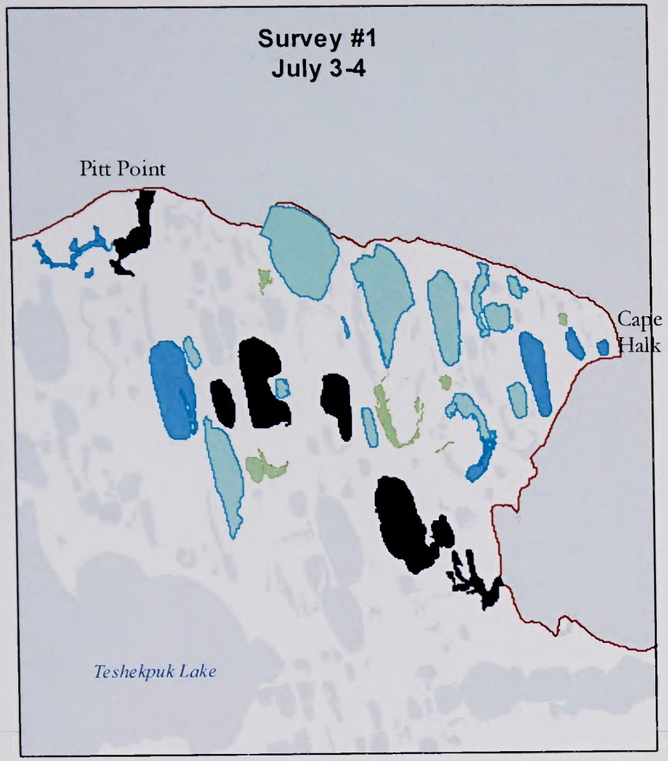
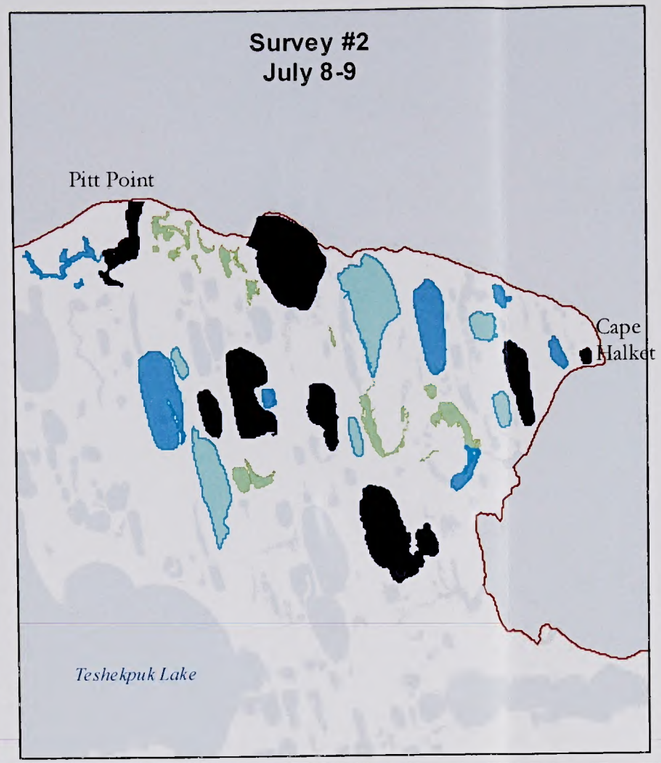
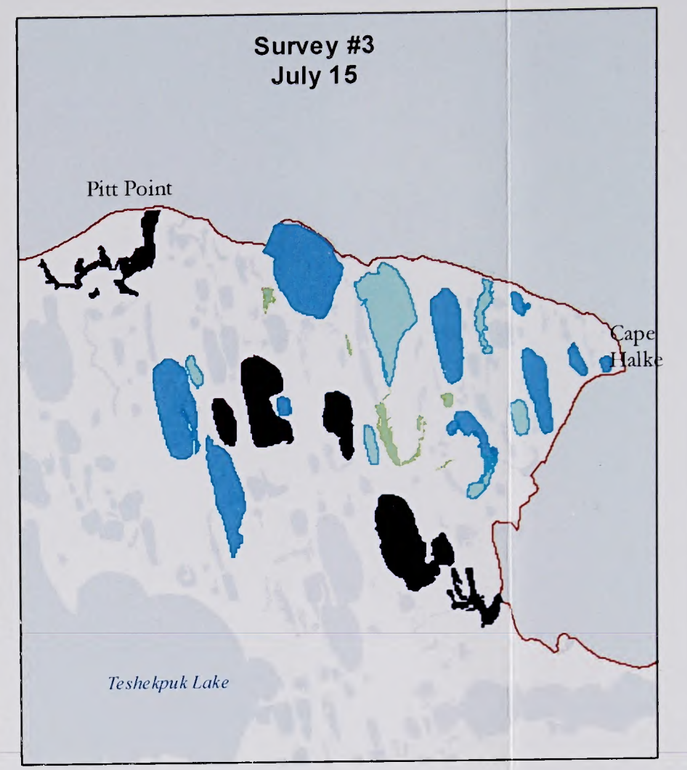
Projection: Albers Conic Equal Area
referencing NAD83

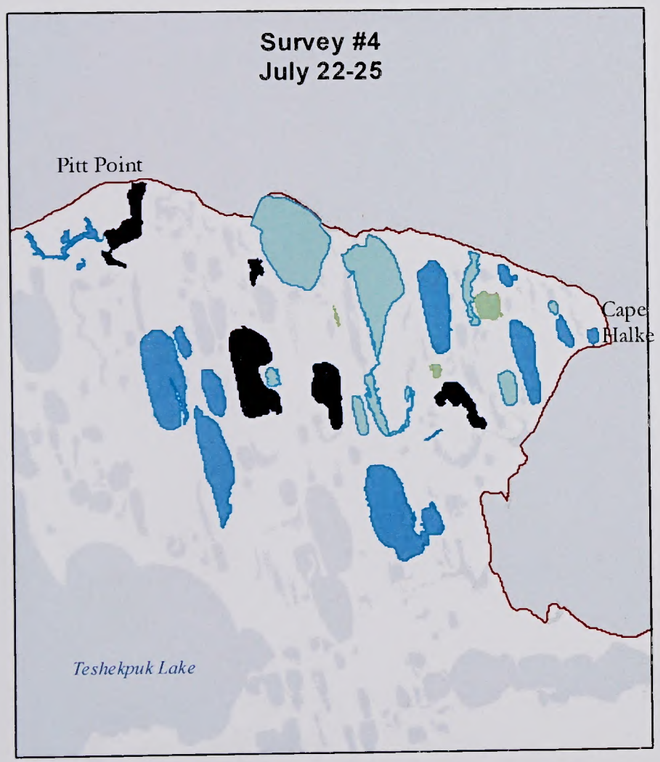
Bureau of Land Management - Alaska

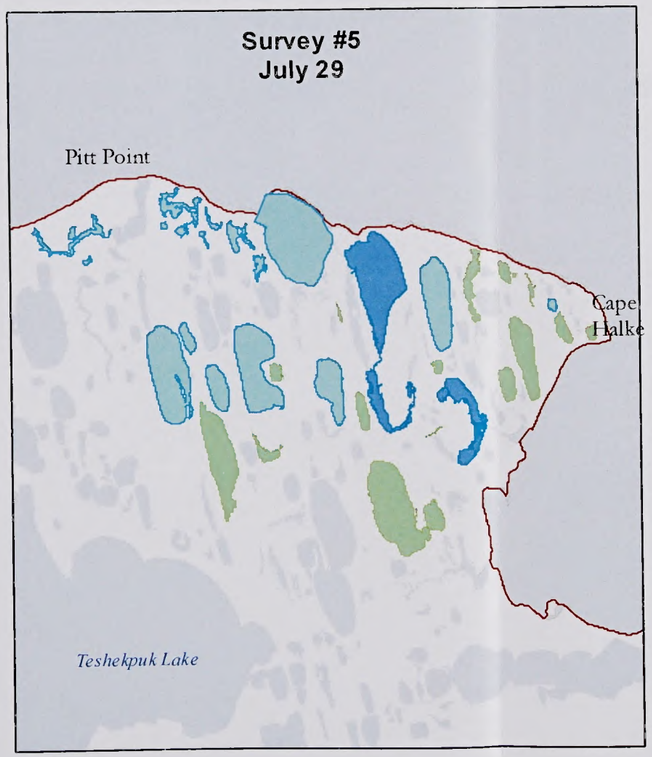
National Petroleum Reserve - Alaska
Final IAP/EIS

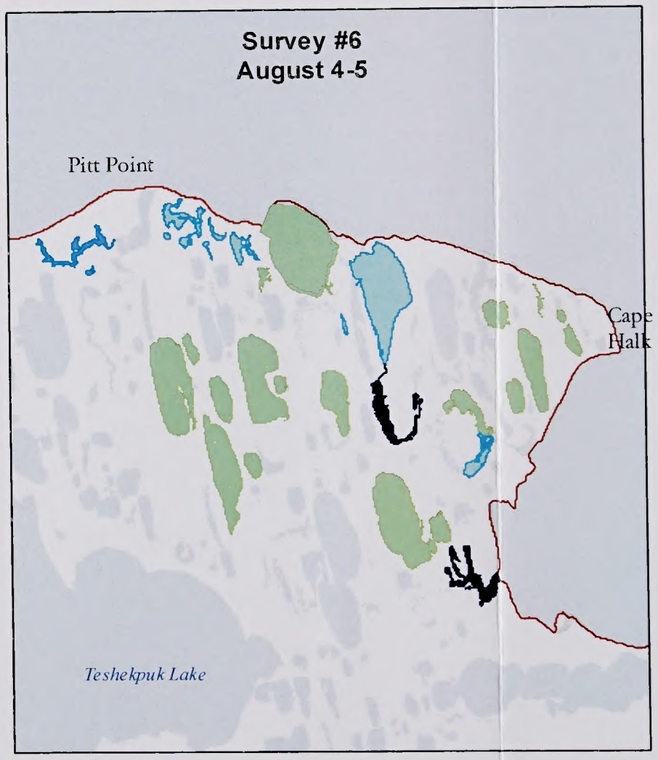












Map 3.3.5-12

Brant Distribution in Surveyed Lakes - 2008

Source: USGS, 2010

Number of Brant per Lake

- 1 - 100
- 101 - 500
- 501 - 1,000
- 1,001 - 2,946

NPR-A Boundary

0 5 10 Miles

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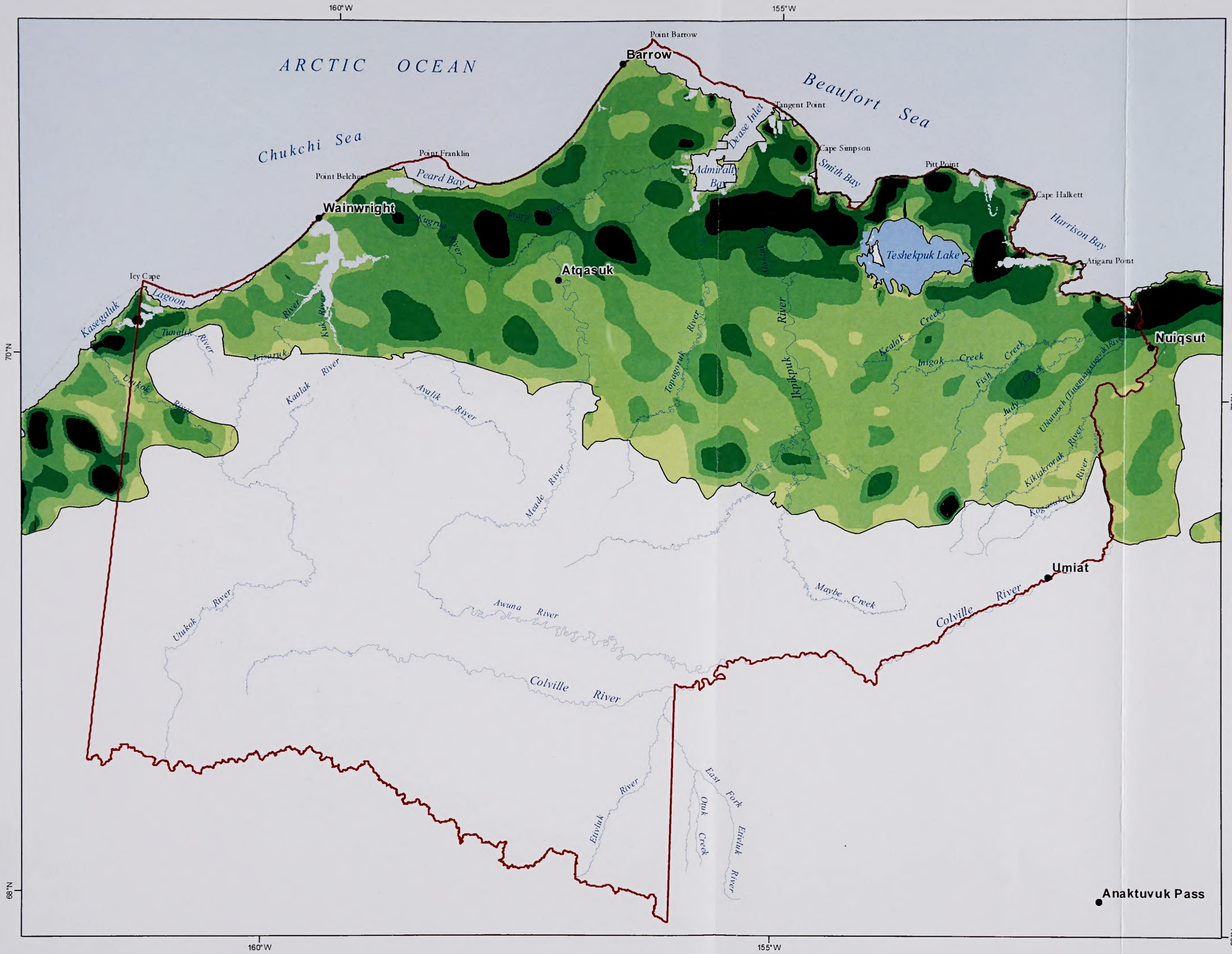
Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS



Map 3.3.5-13

Greater White-fronted Goose Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

GREATER WHITE-FRONTED GOOSE

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 8.782 - 15.846
- 5.002 - 8.781
- 2.304 - 5.001
- 0.119 - 2.303
- 0.000 - 0.118

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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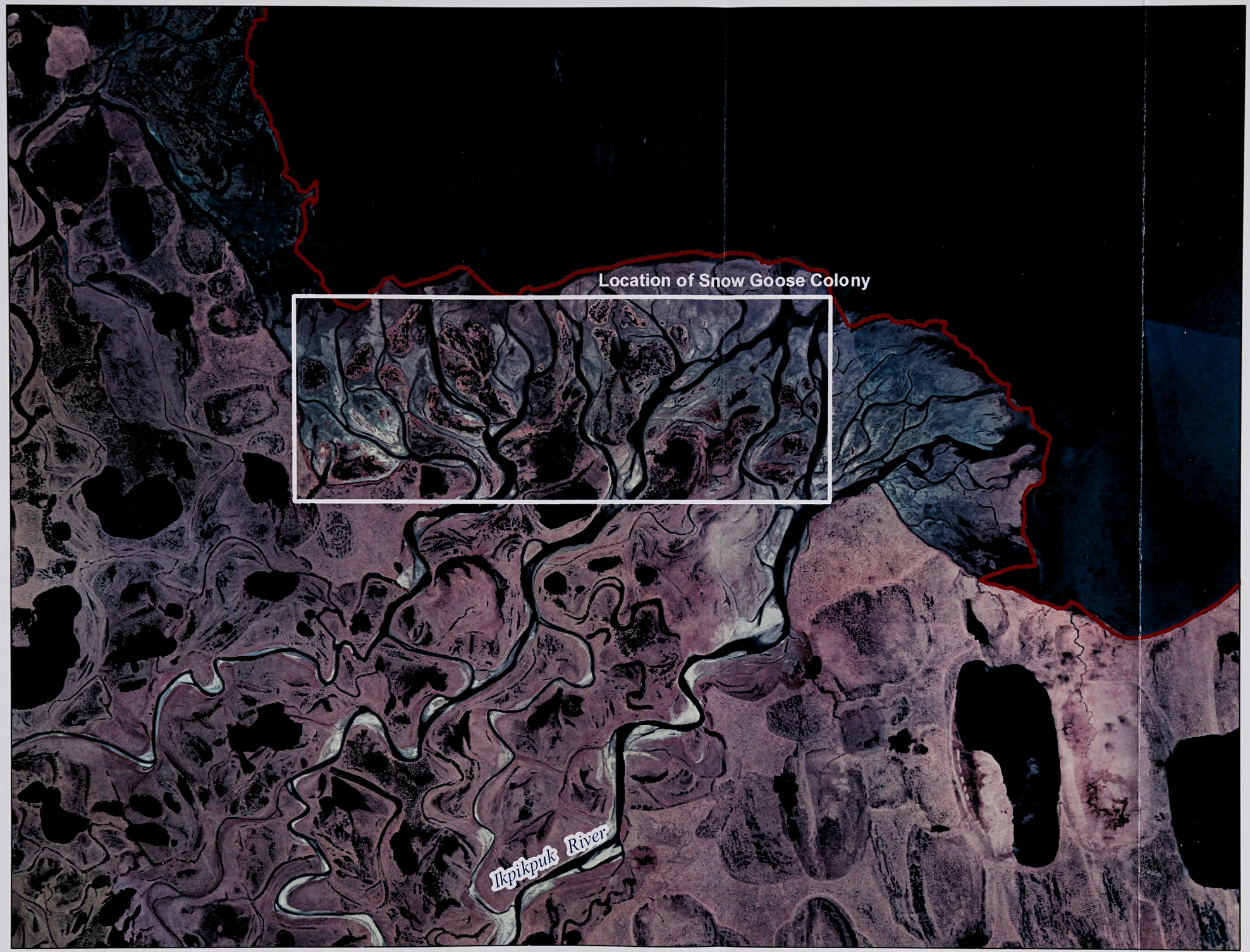
Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS



Map 3.3.5-14

Ikpikpuk River Delta Lesser Snow Goose Colony

Sources: ABR, 2007.
Imagery Source: USGS, 2002-2007.

NPR-A Boundary

0 1 2 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS

155°W

Beaufort Sea

Tangent Point

Dease Inlet

Admiralty Bay

Cape Simpson

Smith Bay

Pitt Point

Cape Halkett

Harrison Bay

Teshekpuk Lake

Atigaru Point

Topagoruk River

Ikpikpuk River

Kealok Creek

Inigok Creek

Fish Creek

Ublutuoch (Tingmiaqsingvik) River

155°W

Map 3.3.5-15

Lesser Snow Goose Brood-rearing Survey

Source: Ritchie et al., 2010

LESSER SNOW GOOSE
Brood-rearing Survey Locations 2010

Groups With Young
- 1 - 50
- 51 - 100
- >100

Goups Without Young
- 1 - 50
- 50 - 100
- >100

NPR-A Boundary

0 6 12 18 Miles

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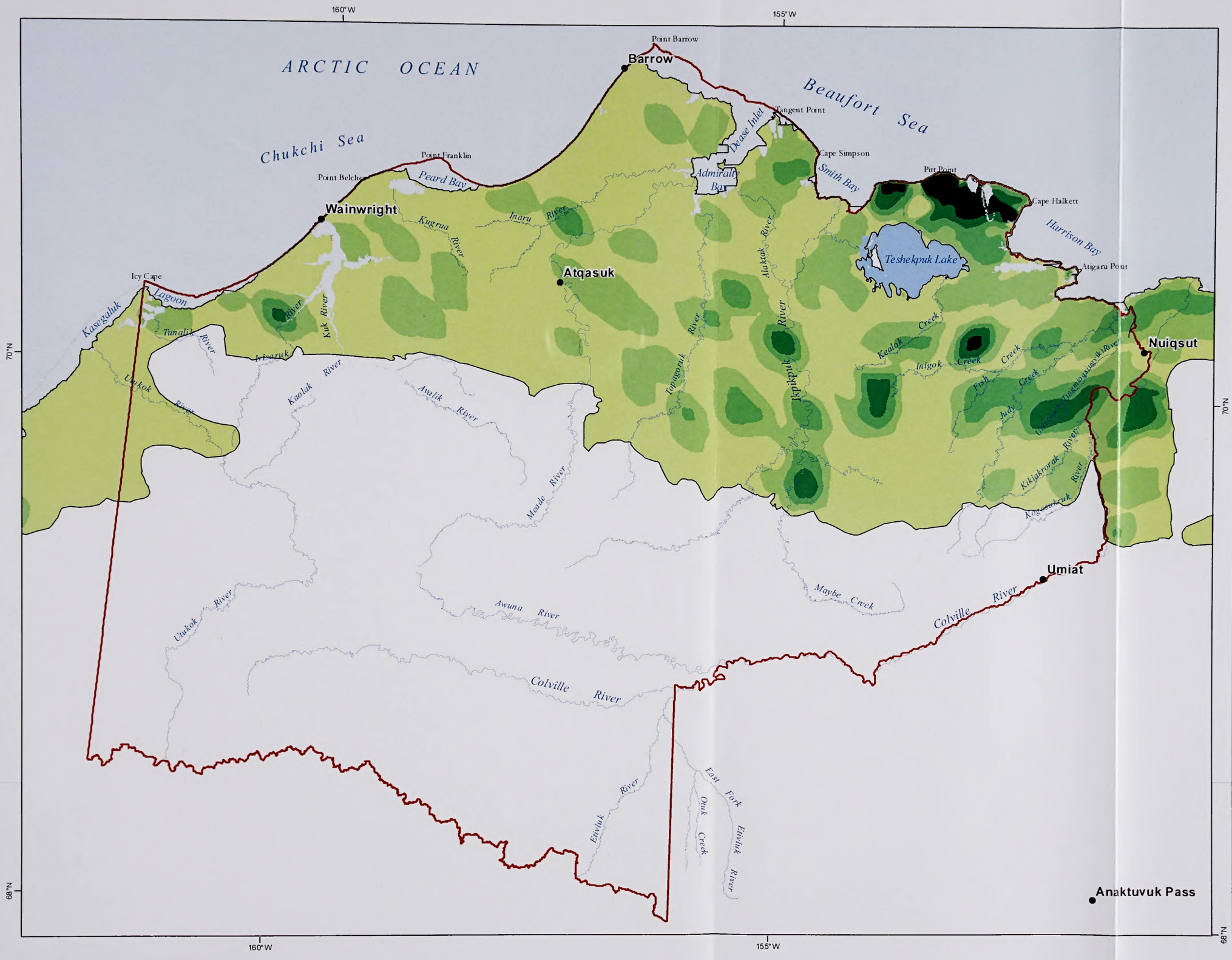
Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS



Map 3.3.5-16

Canada Goose Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

CANADA GOOSE

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 2.973 - 8.104
- 1.294 - 2.972
- 0.460 - 1.293
- 0.030 - 0.460
- 0.000 - 0.029

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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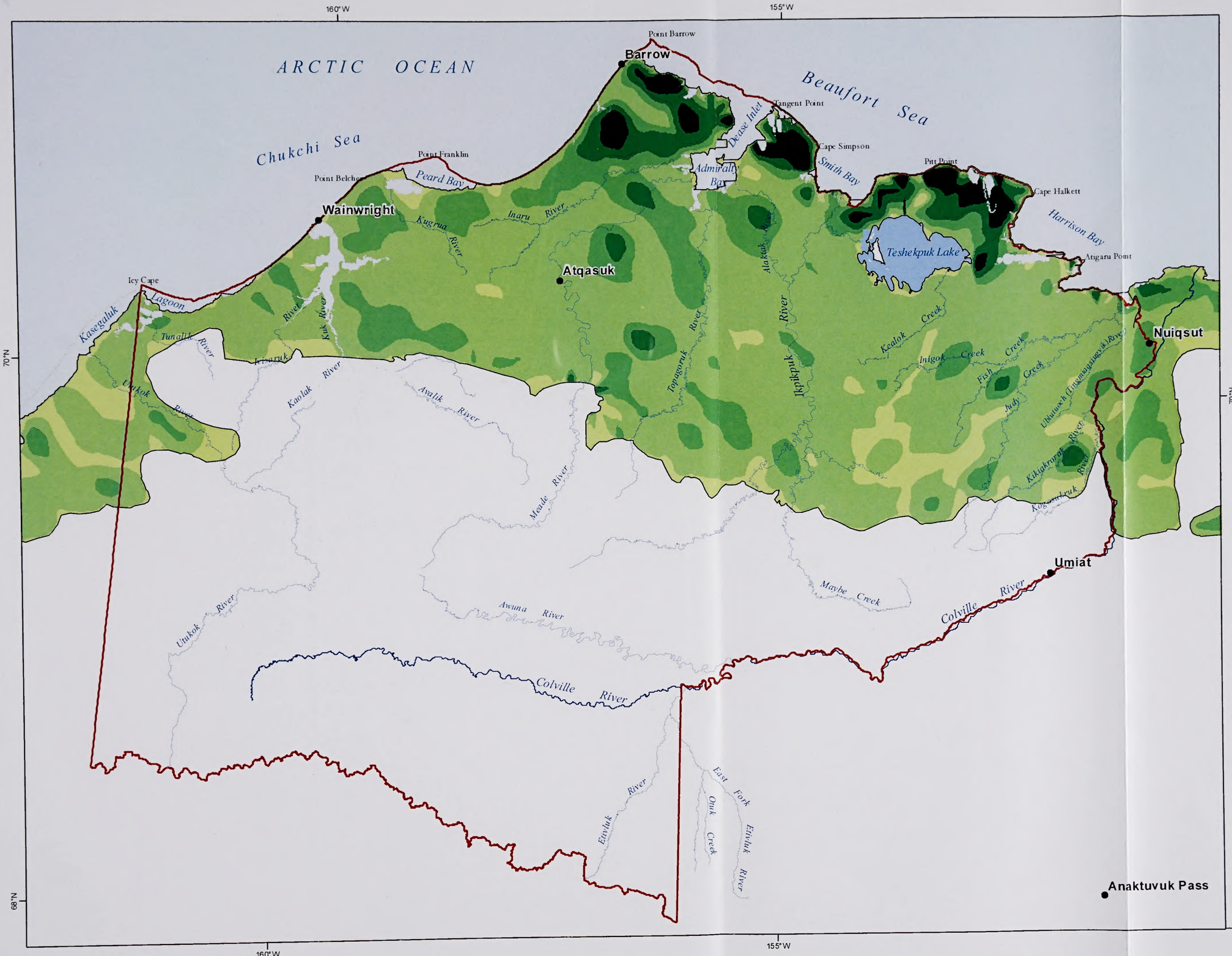
Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS



Map 3.3.5-17

Northern Pintail Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

NORTHERN PINTAIL

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 3.918 - 7.284
- 2.029 - 3.918
- 0.844 - 2.028
- 0.029 - 0.844
- 0.000 - 0.028

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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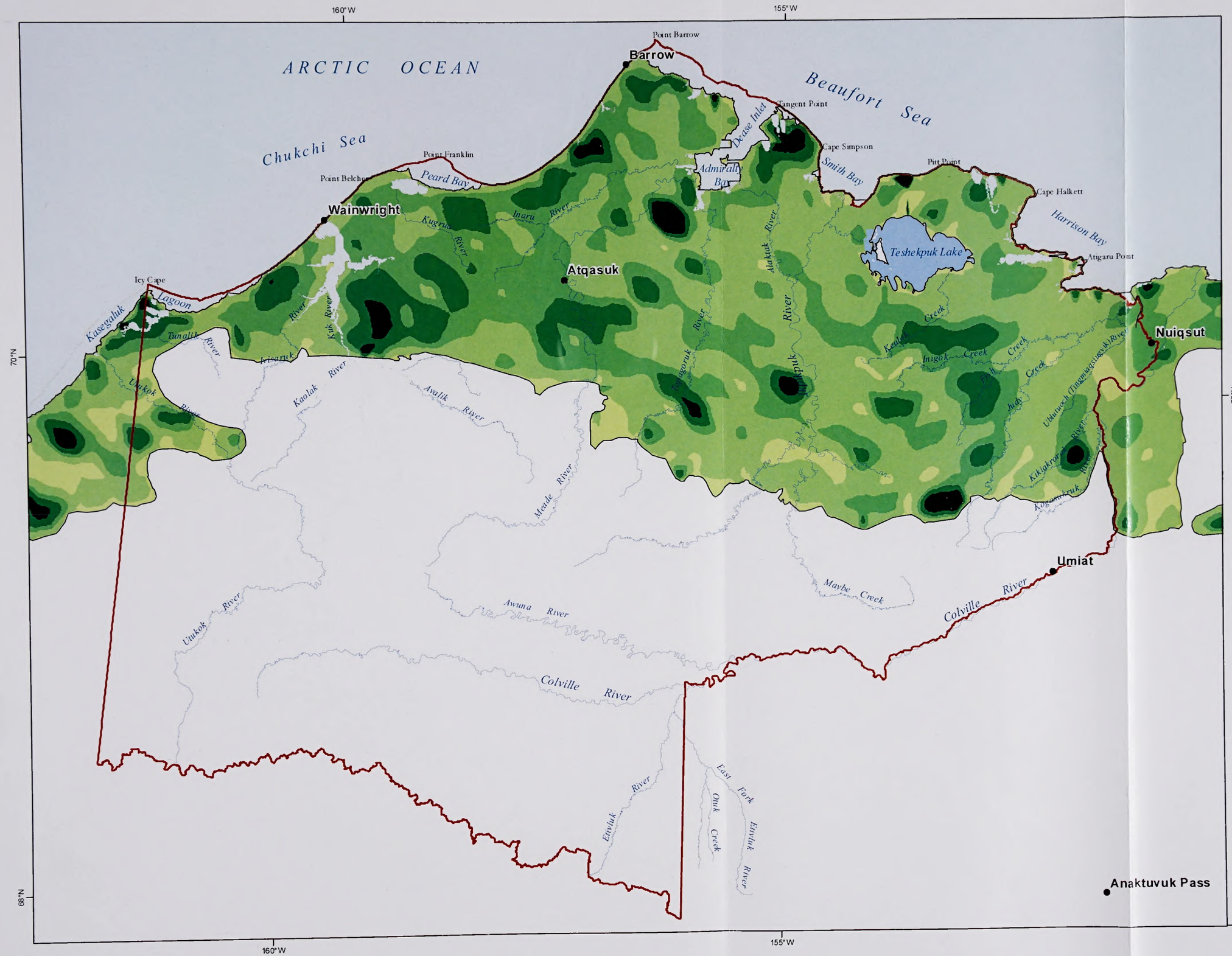

Map 3.3.5-18

Long-tailed Duck Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

LONG-TAILED DUCK

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 2.070 - 4.346
- 1.156 - 2.070
- 0.608 - 1.155
- 0.029 - 0.607
- 0.000 - 0.028

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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referencing NAD83

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Map 3.3.5-19

King Eider Onshore Density and Selected Locations of Satellite Transmitter Equipped Individuals

Source: USFWS - Migratory Bird Management, 2010 & Minerals Management Service

KING EIDERS
Estimated Relative Onshore Density (2007-2010)
Birds per Square Kilometer

- 1.311 - 2.367
- 0.728 - 1.310
- 0.338 - 0.728
- 0.033 - 0.337
- 0.000 - 0.032

Survey Area Boundary

Sample of Satellite Transmitter Locations (2002 - 2007)

Location of King Eider Individual on Specific Date

King Eider Satellite Capture Area

NPR-A Boundary

0 12 24 36 Miles

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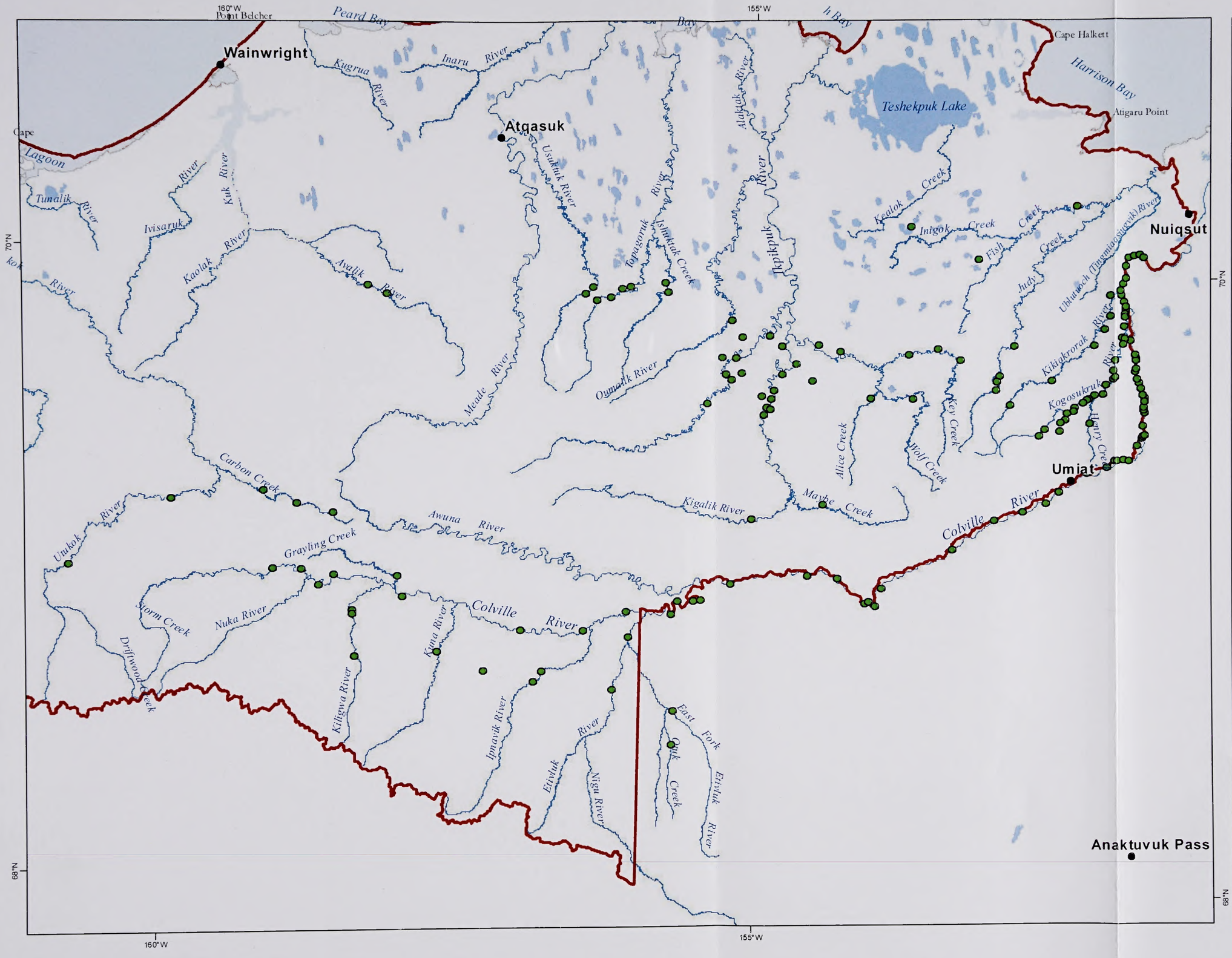

Map 3.3.5-20

Peregrine Falcon Nesting/ Activity Sites

Source: BLM, 2006

- Peregrine Falcon Locations
- NPR-A Boundary

0 12 24 36 Miles

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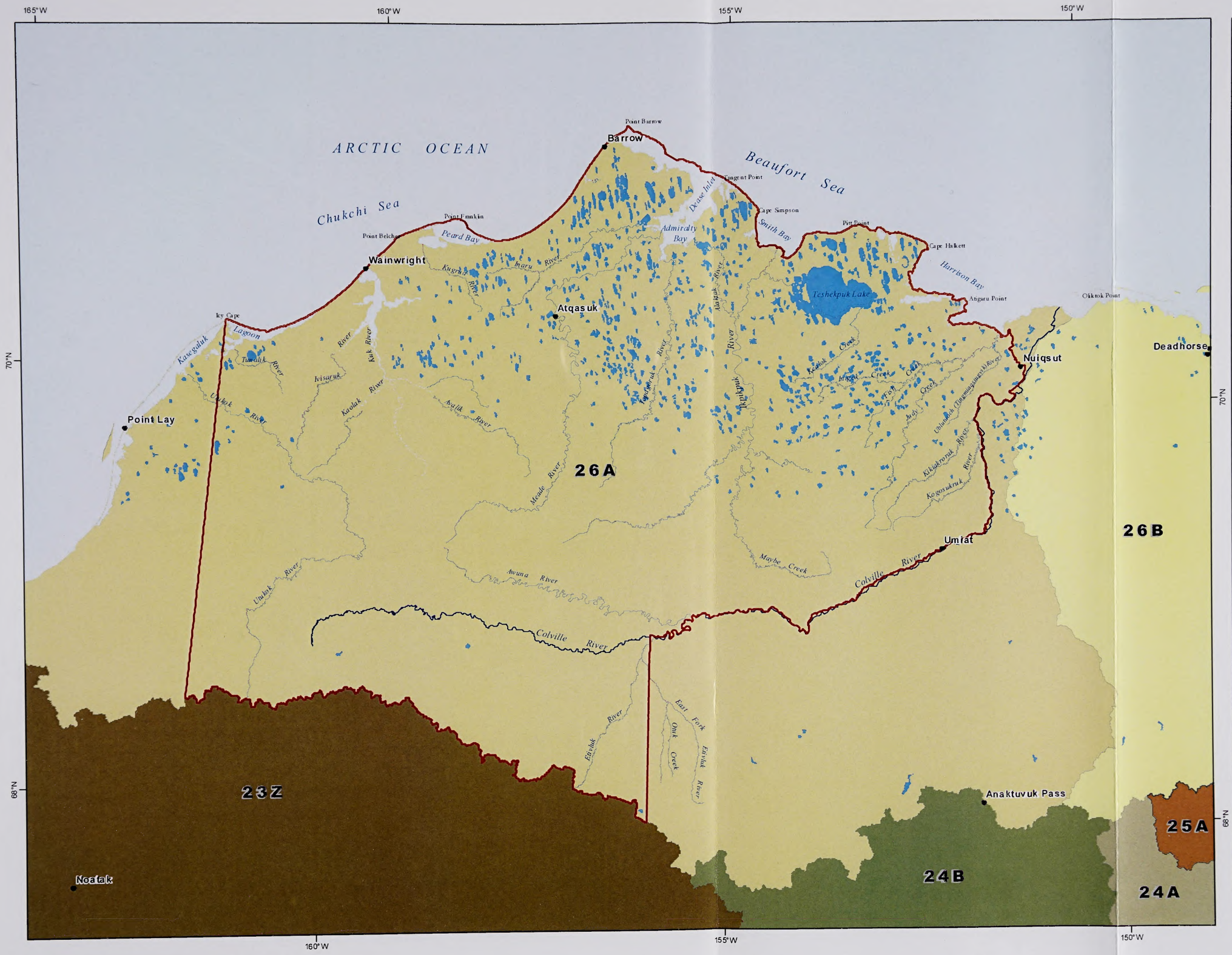

Map 3.3.6-1

Game Management Units

Source: ADF&G - 2010

Game Management Unit

NPR-A Boundary

0 6 12 24 36 48 Miles

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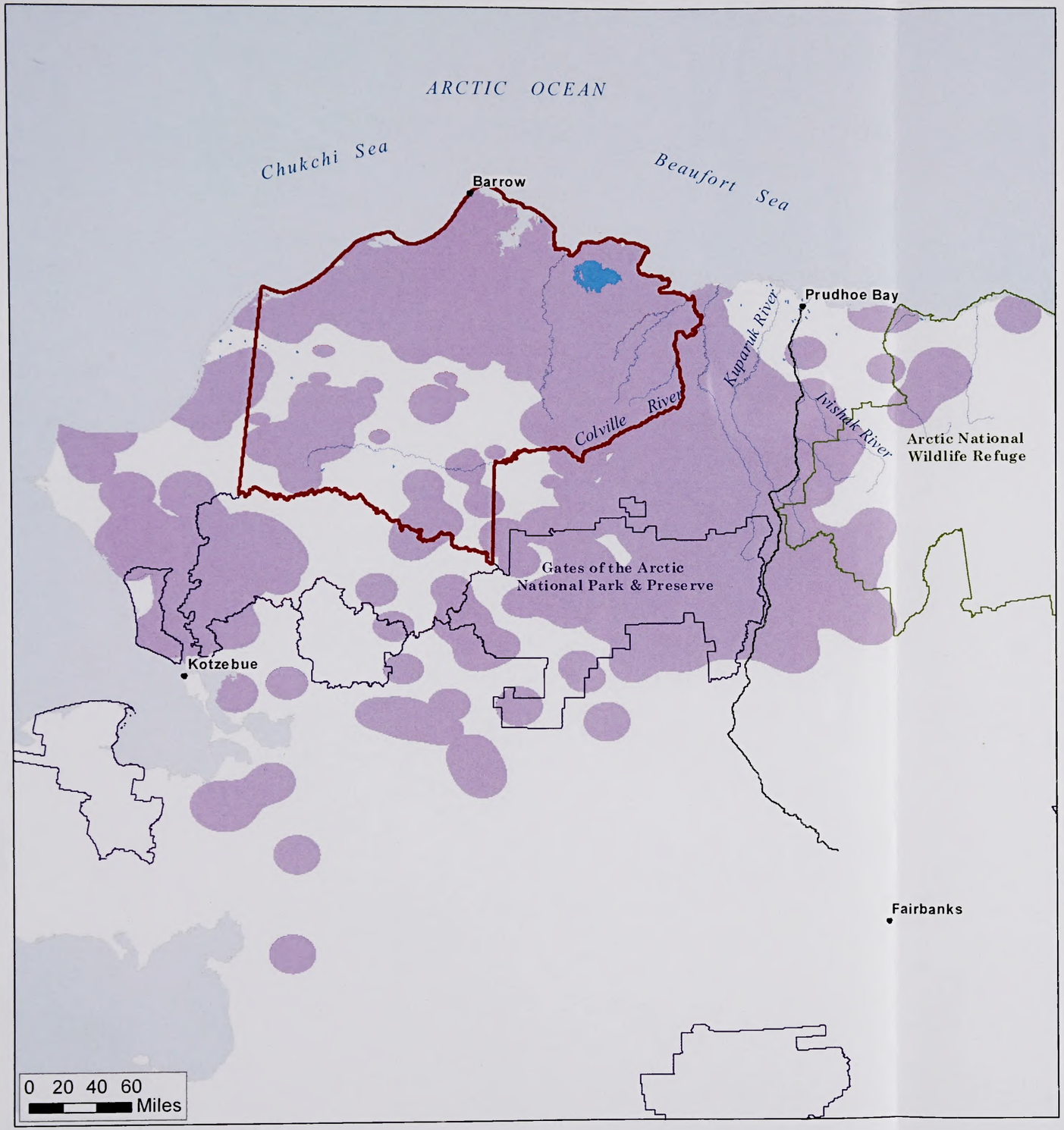
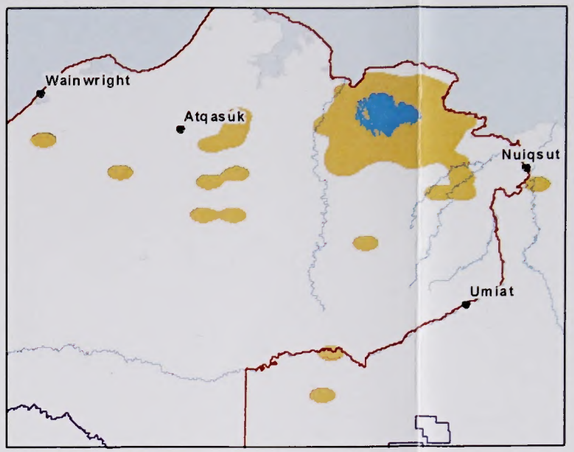
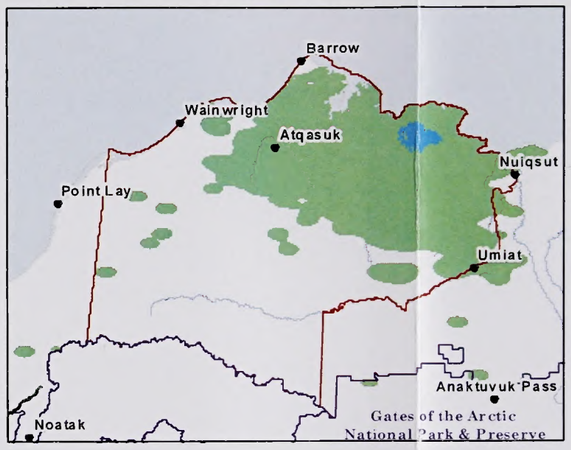


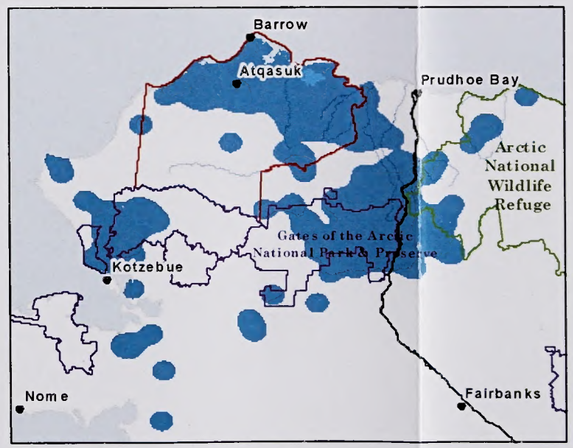
CALVING 1-15 June



SUMMER 1 June - 15 September



WINTER 1 December - 15 April



Map 3.3.6-2

Teshekpuk Lake Caribou Herd - Seasonal Range

Source: ADF&G, NSB, BLM, CPAI, and ABR

Teshekpuk Lake Caribou Seasonal Areas
Fixed Kernel Probability
95% Utilization Distribution
(1990 - 2010 Satellite Telemetry Data)

Season

- Annual
- Calving
- Summer
- Winter

Dalton Highway

NPR-A Boundary

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Summer, winter and annual range depictions were drawn based on radio and satellite telemetry (1990 - 2006) to represent bounds within which most of the herd is found most of the time.

CALVING

Calving range: 95% utilization distribution determined by fixed kernel model of all locations of radiocollared cows observed with calves during early June, 1990-2005.

SUMMER

WINTER

Map 3.3.6-3
Central Arctic Caribou Seasonal Ranges

Source: ADF&G - 2010

CENTRAL ARCTIC CARIBOU SEASONAL RANGE

- Calving
- Summer
- Winter
- Annual

- Dalton Highway
- NPR-A Boundary

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Projection: Albers Conic Equal Area
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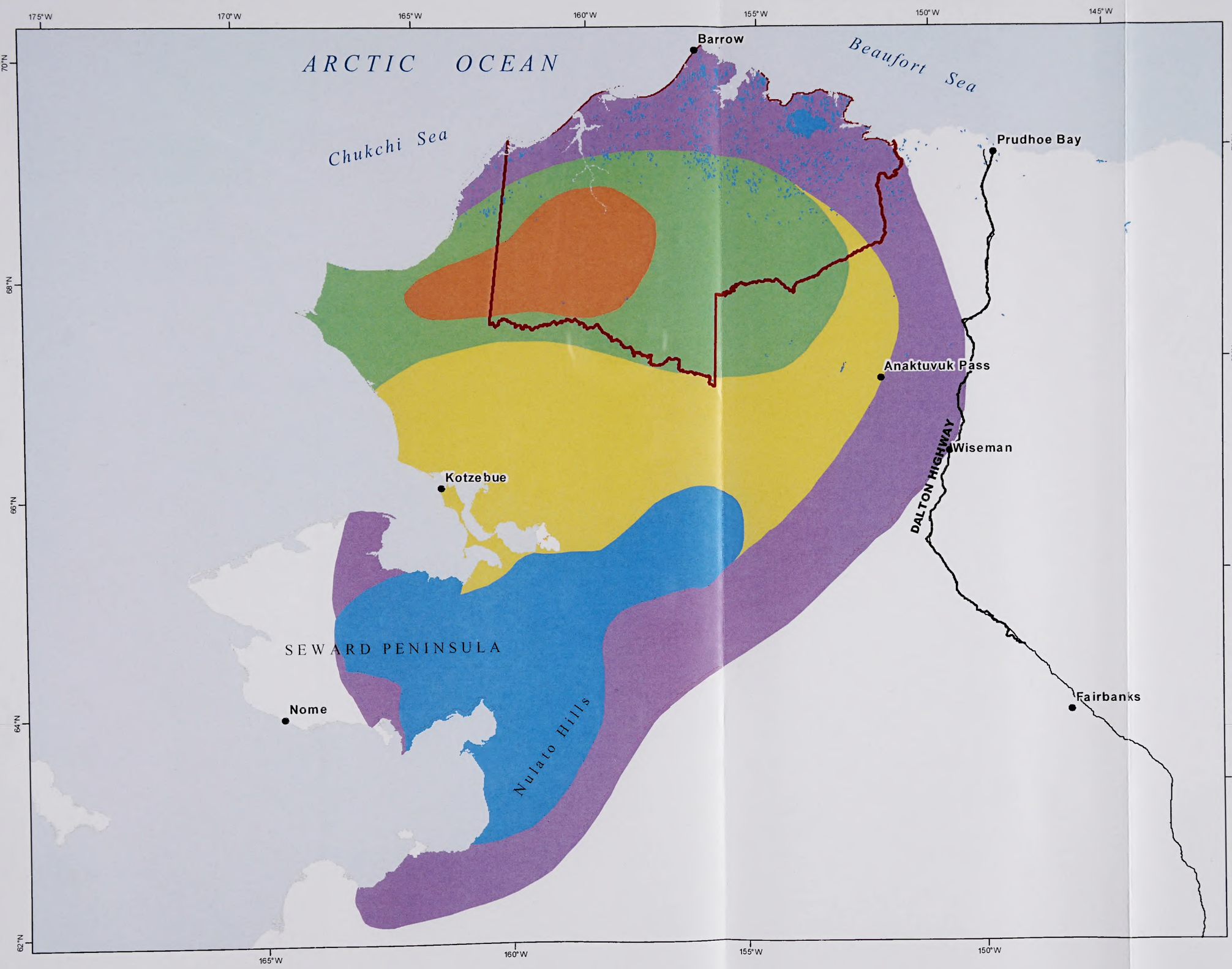

Map 3.3.6-4

Western Arctic Caribou Herd Range

Source: ADF&G - 2010

Western Arctic Caribou Herd Range

- Calving Grounds
- Migratory Area
- Outer Range
- Summer Range
- Winter Range

- Dalton Highway
- Trans-Alaska Pipeline
- NPR-A Boundary

0 50 100 Miles

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referencing NAD83

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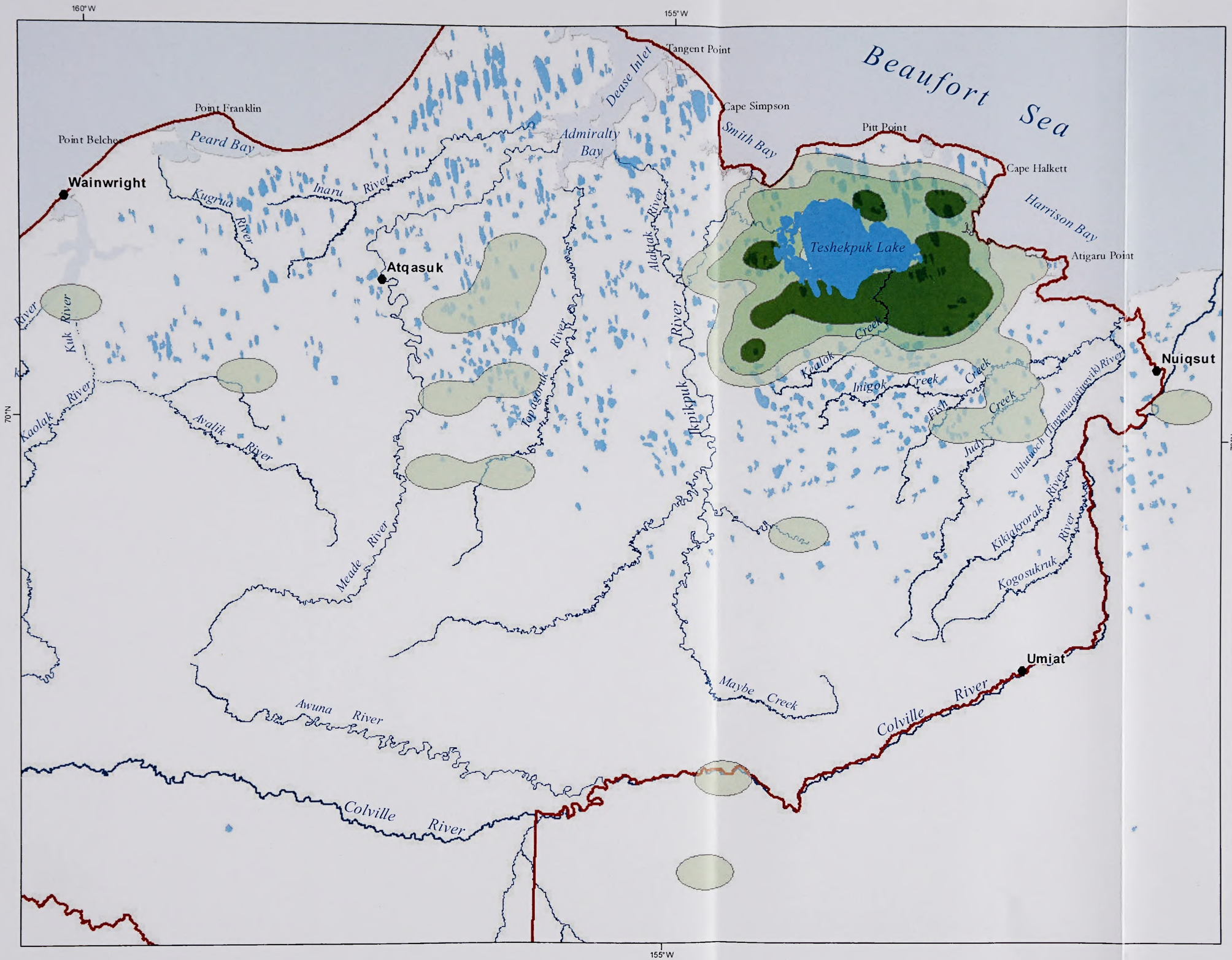

Map 3.3.6-5

Teshekpuk Lake Caribou Herd - Calving Areas

Source: ADF&G, NSB, BLM, CPAI, and ABR

Teshekpuk Lake Caribou Herd Calving Area - 1 -15 June Successful Females Only Kernel Density Analysis (1990 - 2010 Satellite Telemetry Data)

Density Contour

- 50 %
- 75 %
- 95 %

NPR-A Boundary

0 5 10 15 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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155°W

Point Barrow

Barrow

Beaufort Sea

Tangent Point

Dease Inlet

Cape Simpson

Admiralty Bay

Smith Bay

Pitt Point

Cape Halkett

Harrison Bay

Inaru River

Teshekpuk Lake

Atigaru Point

Atqasuk

Alaktak River

Topagoruk River

Ikpikpuk River

Kealok Creek

Inigok Creek

Fish Creek

Judy Creek

Ublutuoch (Tingmiaqsiugvik) River

Nuiqsut

Kikiakrorak River

Kogosukruk River

eade River

70°N

155°W

Map 3.3.6-6
Teshekpuk Lake Caribou Herd - Mosquito Relief Areas

Source: ADF&G, NSB, BLM, CPAI, and ABR

Teshekpuk Lake Caribou Herd Mosquito Relief Area- 1-15 July Kernel Density Analysis (1990 - 2010 Satellite Telemetry Data)

Density Contour

- 50 %
- 75 %
- 95 %

NPR-A Boundary

0 5 10 15 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

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155°W

150°W

Point Barrow

Barrow

Beaufort Sea

Tangent Point

Dease Inlet

Cape Simpson

Smith Bay

Pitt Point

Point Franklin

Peard Bay

Admiralty Bay

Cape Halkett

Harrison Bay

Inaru River

Kugrua River

Teshekpuk Lake

Atigaru Point

Atqasuk

Aladkuk River

Ikpikpuk River

Topagoruk River

Kealok Creek

Inigok Creek

Fish Creek

Judy Creek

Ublutuoch (Tinmiaqsiuvik) River

Nuiqsut

Avalik River

Meade River

Kikiakrorak River

Kogosukruk River

Awuna

Maybe Creek

Colville River

Umiat

70°N

155°W

Map 3.3.6-7

Teshekpuk Lake Caribou Herd - Fly Relief Areas

Source: ADF&G, NSB, BLM, CPAI, and ABR

Teshekpuk Lake Caribou Herd Oestrid Fly Relief Area- 16 July - 7 August Kernel Density Analysis (1990 - 2010 Satellite Telemetry Data)

Density Contour

- 50 %
- 75 %
- 95 %

NPR-A Boundary

0 5 10 15 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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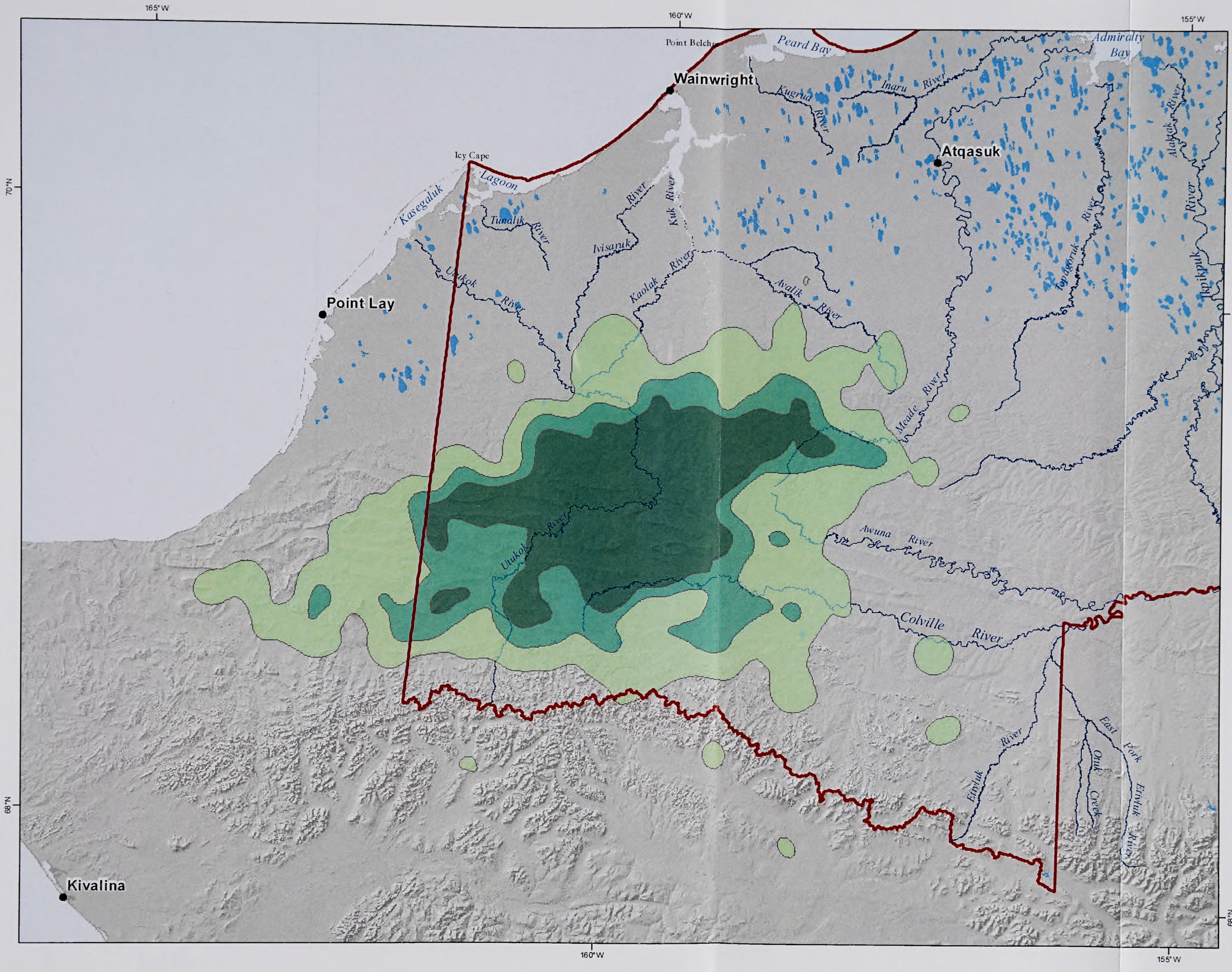

Map 3.3.6-8

Western Arctic Caribou Herd - Calving Ground

Source: ADF&G - 2010

Calving Grounds
Kernel Density Analysis
(1987 - 2010, excluding 1990-1991)

Density Contour

- 50%
- 75%
- 95%

NPR-A Boundary

0 10 20 30 Miles

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Projection: Albers Conic Equal Area
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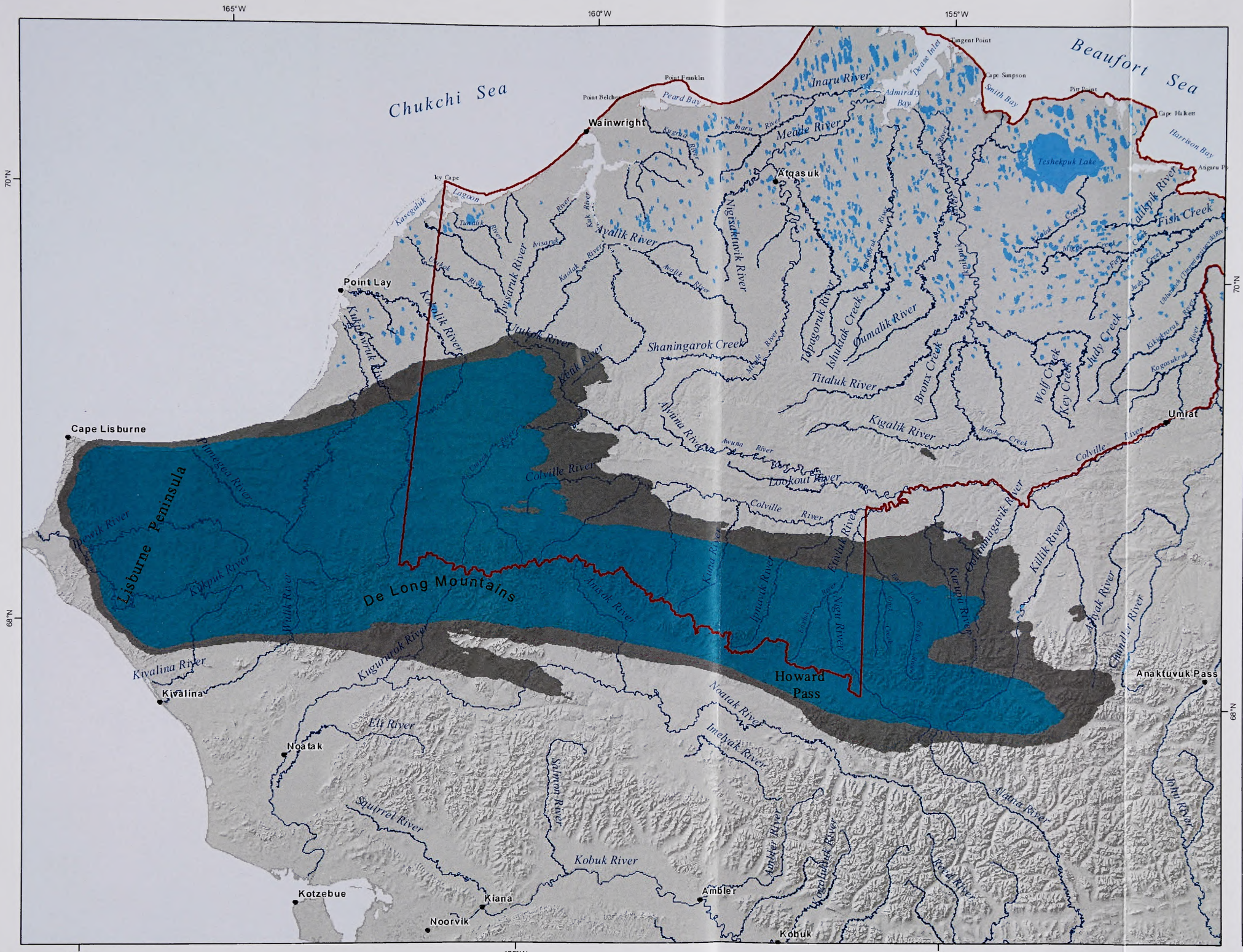

Map 3.3.6-9

Western Arctic Caribou Herd - Summer Movements

Source: ADF&G - 2010

Western Arctic Caribou Herd Summer Line Density (1988 - 2010)

- 1-2 movement lines crossing each 200 sq mi grid
- >2 movement lines crossing each 200 sq mi grid
- NPR-A Boundary

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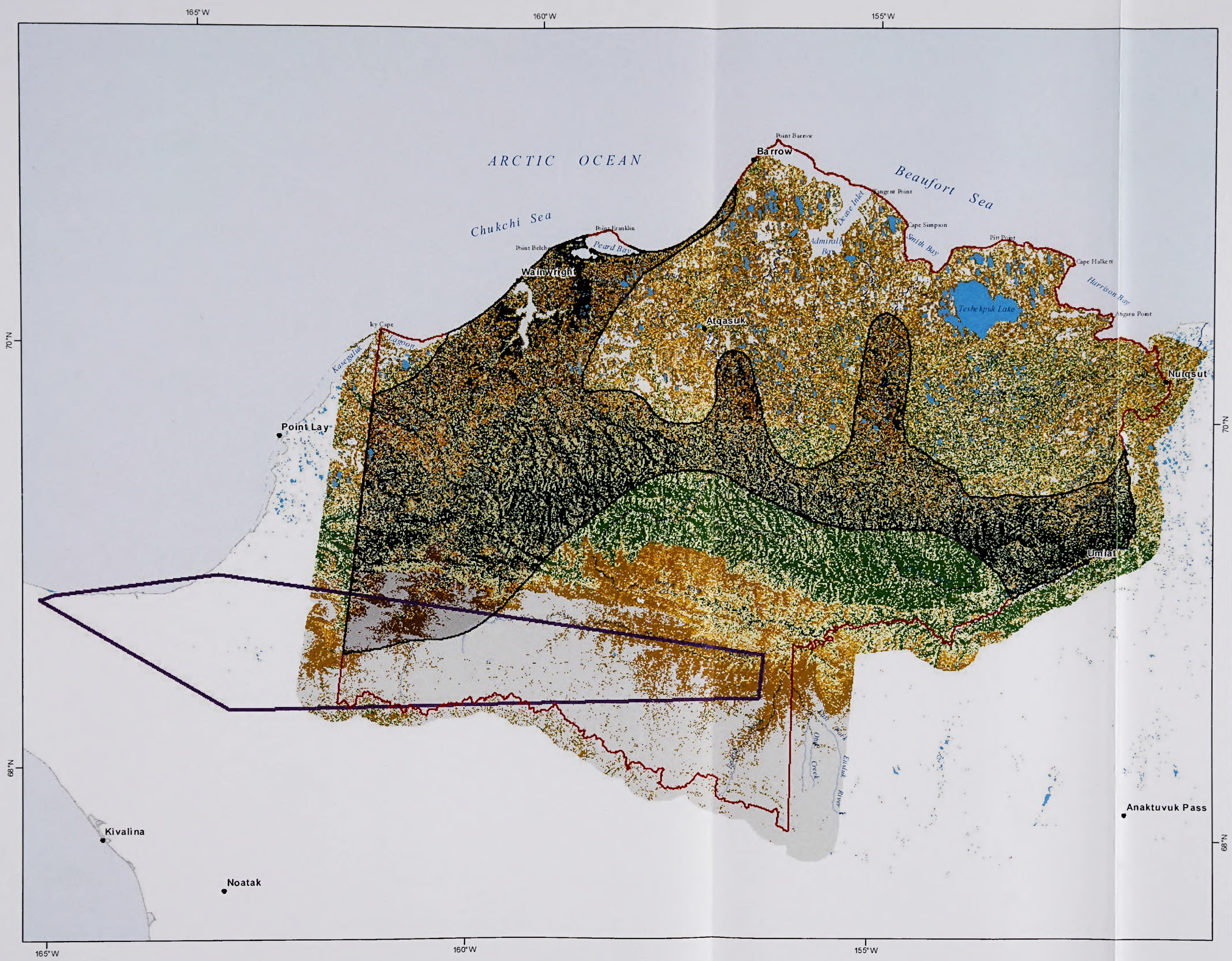

Map 3.3.6-10

Muskox Predicted Winter Habitat

Sources: USDOI BLM -1978
Danks, Fiona - 2000
ADF&G - 2010

Best Potential Year-Round Muskox Habitat (USDOI BLM 1978)

Muskox Potential Winter Habitat (Danks, 2000)

- Low
- Medium
- High

Muskox Sightings, 2008-2010

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
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Map 3.3.6-11

Muskox Predicted Summer Habitat

Sources: Danks, Fiona 2000

Muskox Potential Summer Habitat (Danks, 2000)

- Low
- Medium
- High

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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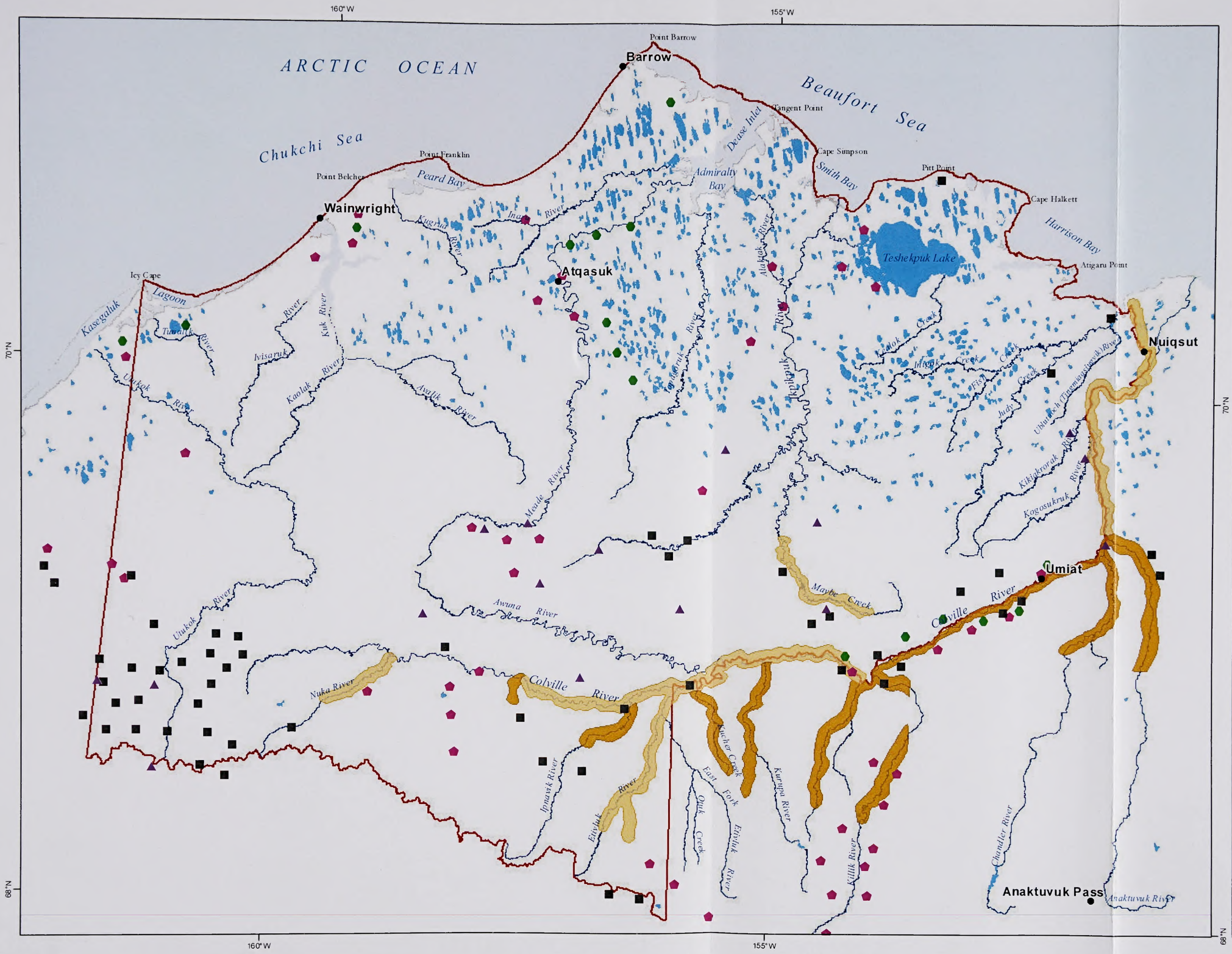
160° W
155° W
70° N
68° N
ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
Dease Inlet
Cape Simpson
Point Franklin
Point Belcher
Peard Bay
Admiralty Bay
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Wainwright
Atqasuk
Teshekpuk Lake
Atigaru Point
Icy Cape
Lagoon
Kasegaluk
Nuiqsut
Umiat
Utukok River
Itkillik River
Colville River
BROOKS RANGE
Etivluk River
Oluk Creek
East Fork Etivluk River
Anaktuvuk Pass



Map 3.3.6-12

Moose Density and Historical Wolverine Sightings and Harvest Locations

Sources: Bee and Hall, 1956
USDOI BLM, 1978

Historical Wolverine Sightings & Harvest Location

- Approximate Harvest Locations of Wolverines Bountied in the 1960s.
- Approximate Locations of Known Wolverine Harvests 1972-1978
- Sightings of Wolverines in Bee and Hall - 1956
- Sightings of Wolverines, 1977 and 1978

Moose Density

- Medium
- High

NPR-A Boundary

0 6 12 24 36 48 Miles

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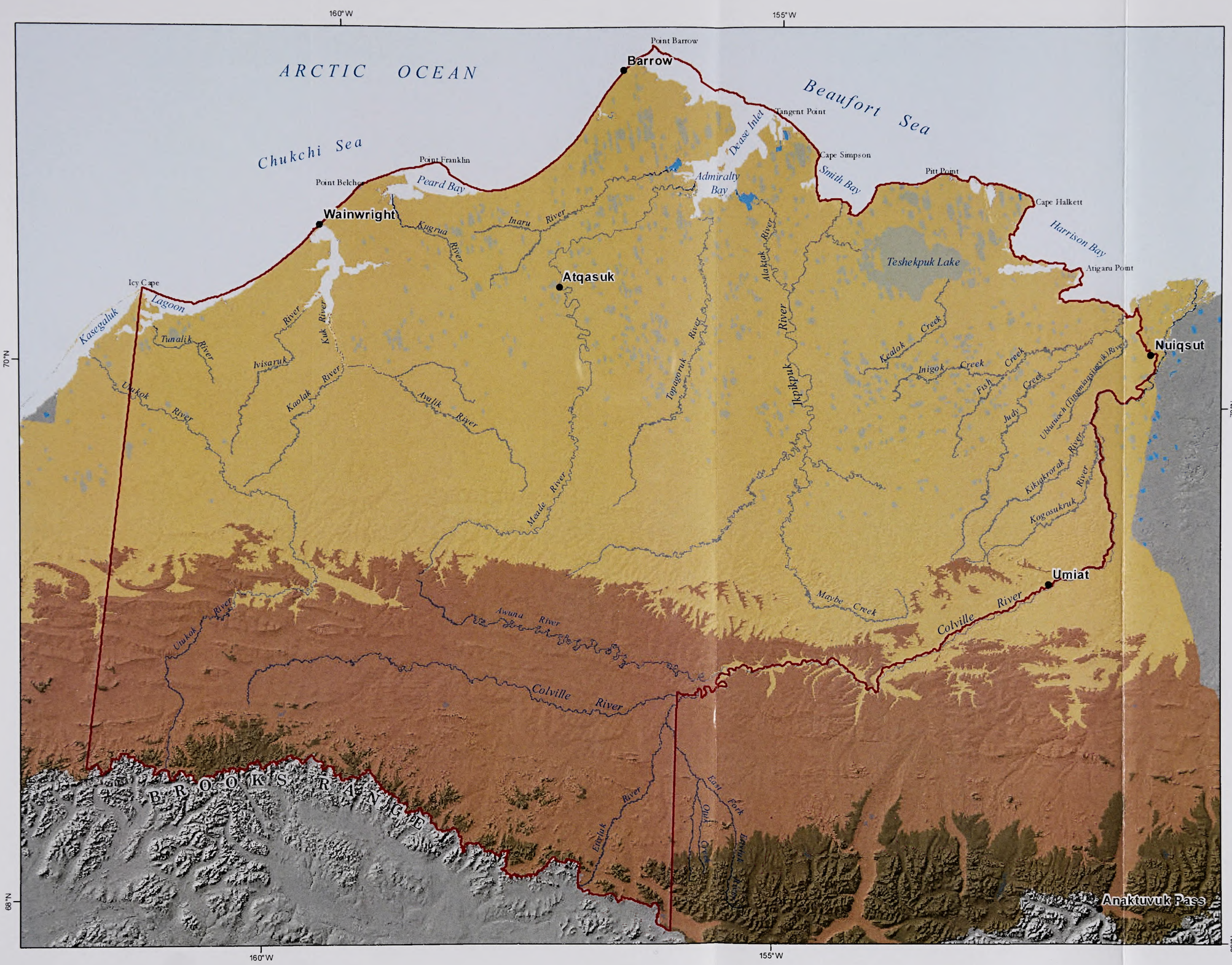

Map 3.3.6-13

Estimated Grizzly Bear Density (based on elevation range)

Source: Carroll, G.M. 1998a.

Estimated Grizzly Bear Density

Bears per 1,000 square kilometers

- 10-20 (>2,500 ft. elevation)
- 10-30 (800 - 2,500 ft. elevation)
- 0.5-2 (<800 ft. elevation)

NPR-A Boundary

0 6 12 24 36 48 Miles

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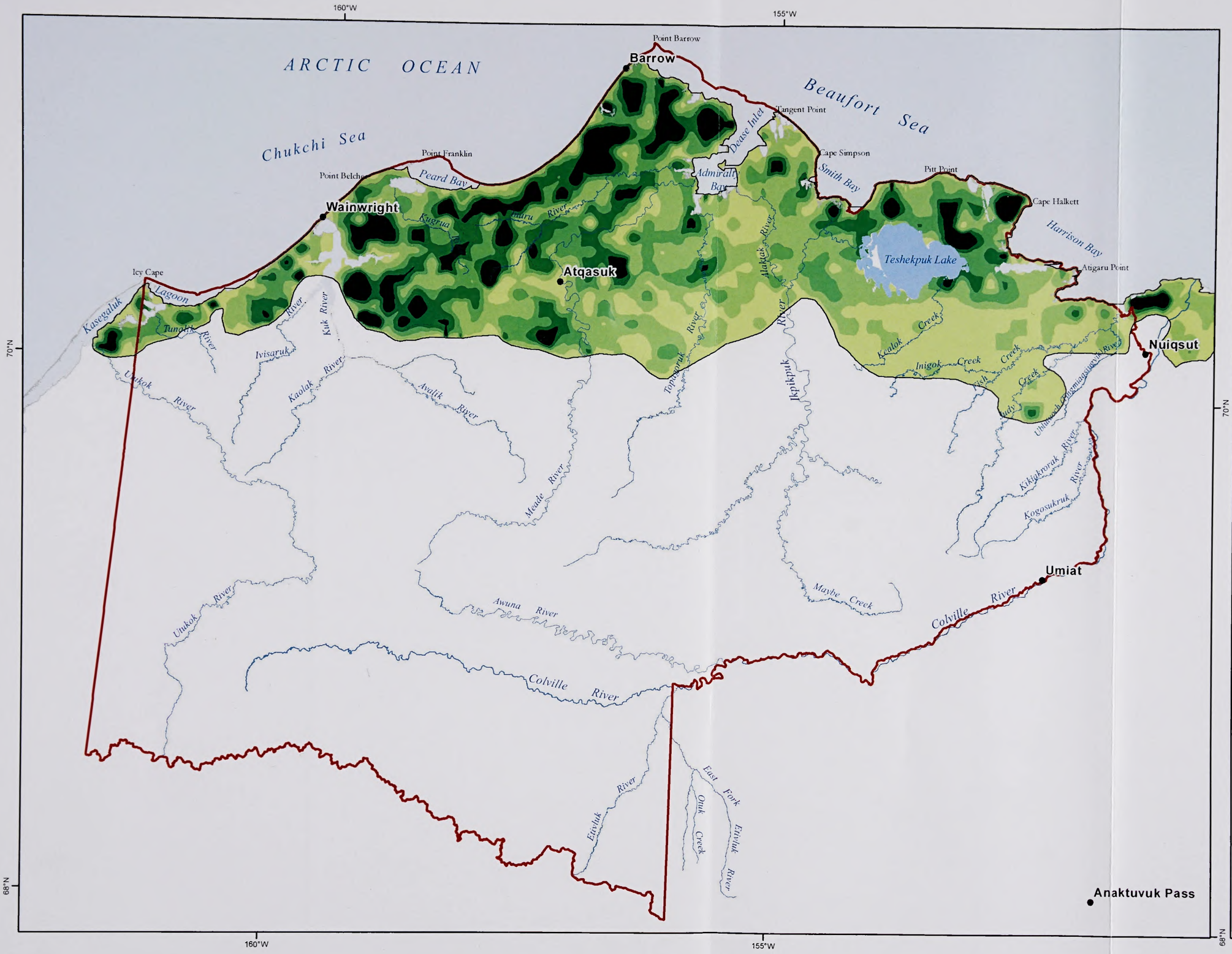

Map 3.3.8-1

Spectacled Eider Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

SPECTACLED EIDER

Estimated Relative Onshore Density (1993-2010)

Birds per Square Kilometer

- 0.410 - 1.409
- 0.226 - 0.409
- 0.147 - 0.225
- 0.035 - 0.146
- 0.000 - 0.034

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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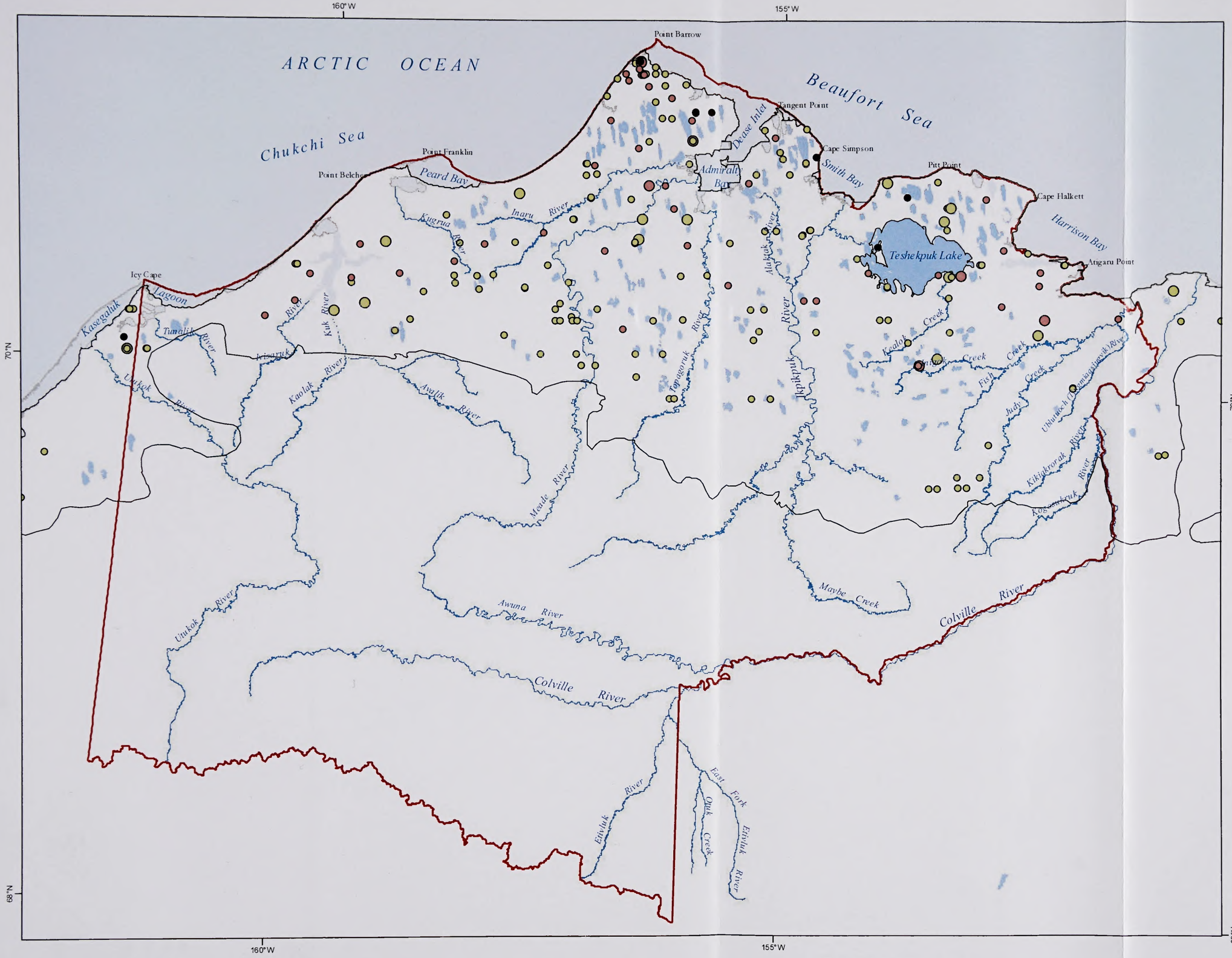

Map 3.3.8-2

Steller's Eider Onshore Locations

Source: USFWS - Migratory Bird Management, 2010

STELLER'S EIDER
Locations of Steller's Eider Groups (1989-2009)

1989-1996
- 1-2 Groups
- 4-5 Groups (seen only in 1993 & 1994)

1997-2006
- 1-2 Groups
- 3-7 Groups

2007-2010
- 1-2 Groups (No birds seen in 2010)

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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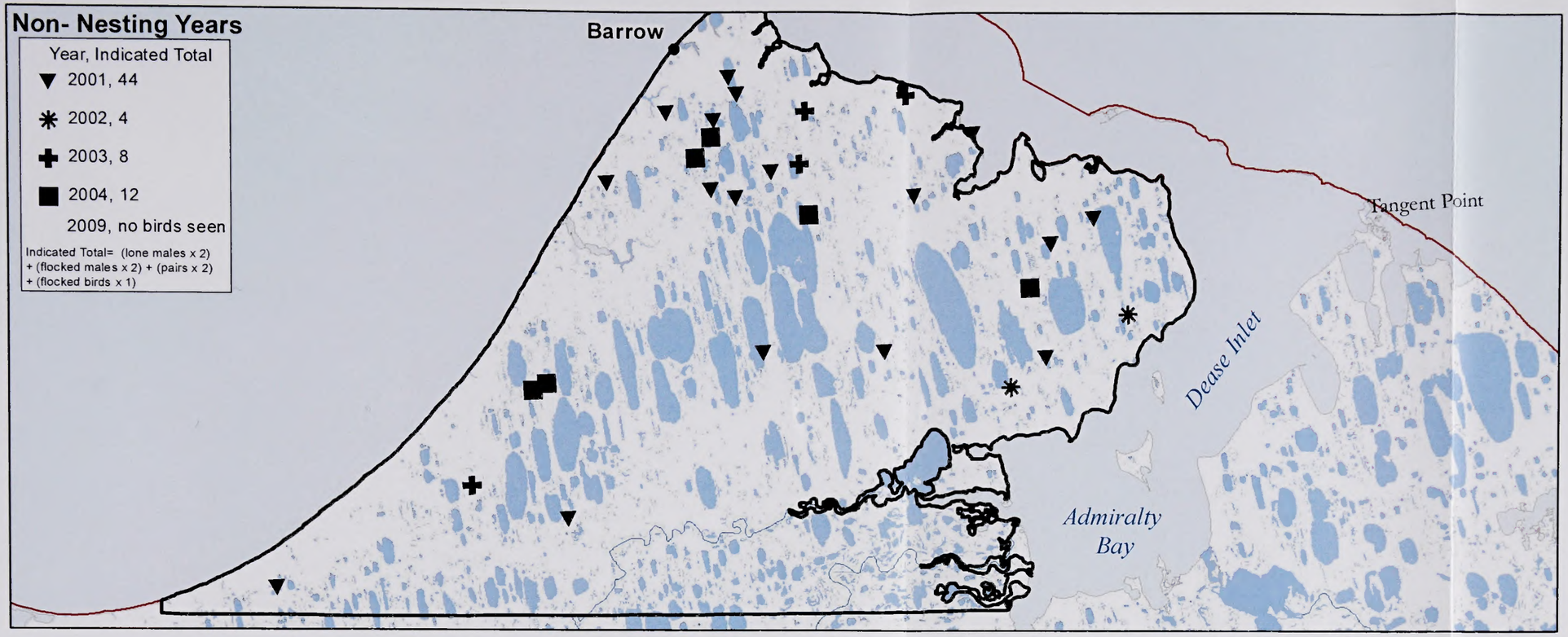

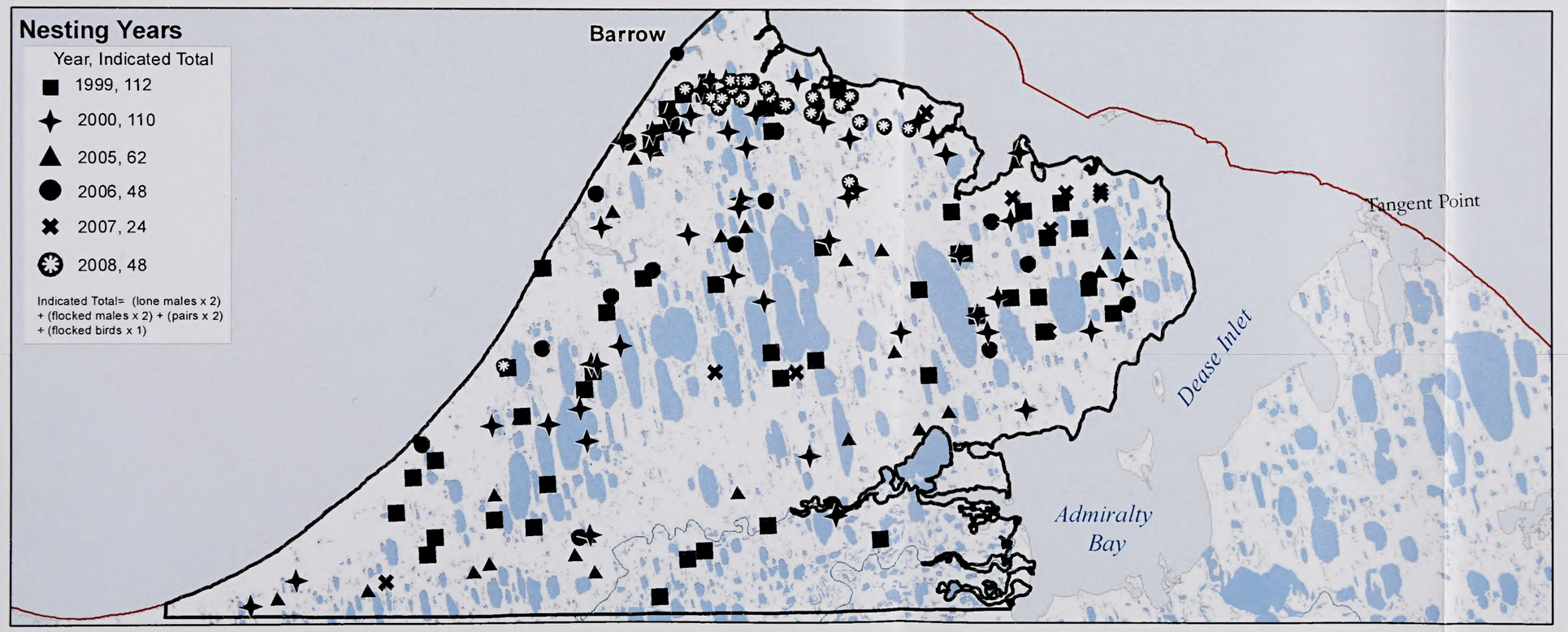

Map 3.3.8-3

Steller's Eider Location Within the Barrow Triangle Survey Area

Source: ABR Inc., 2010

Barrow Triangle

NPR-A Boundary

0 5 10 Miles

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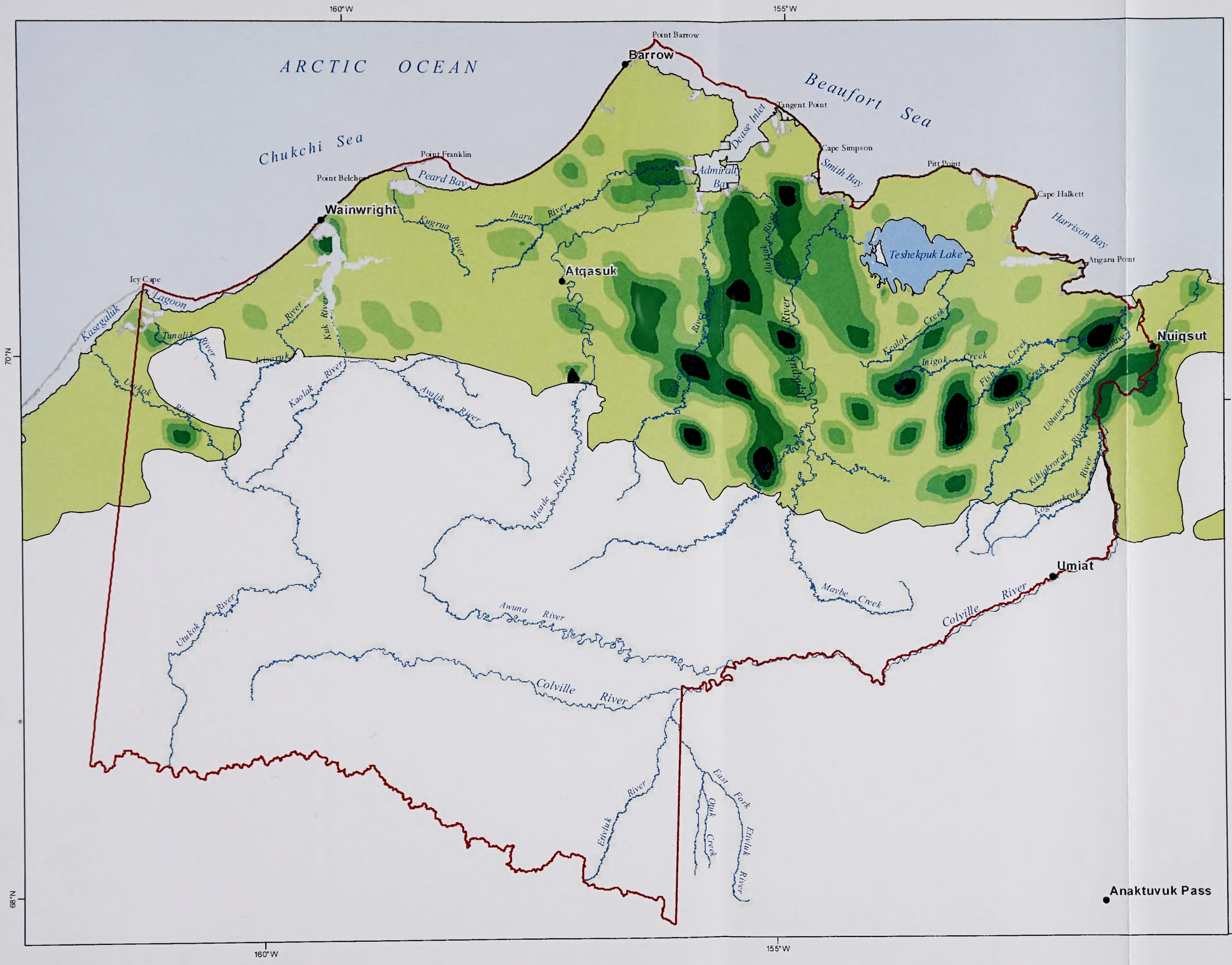
Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS



Map 3.3.8-4

Yellow-billed Loon Onshore Density

Source: USFWS - Migratory Bird Management, 2010.

YELLOW-BILLED LOON

Estimated Relative Onshore Density (2007-2010)

Birds per Square Kilometer

- 0.322- 0.516
- 0.204 - 0.321
- 0.103 - 0.203
- 0.031 - 0.102
- 0.000 - 0.030

Survey Area Boundary

NPR-A Boundary

0 12 24 36 Miles

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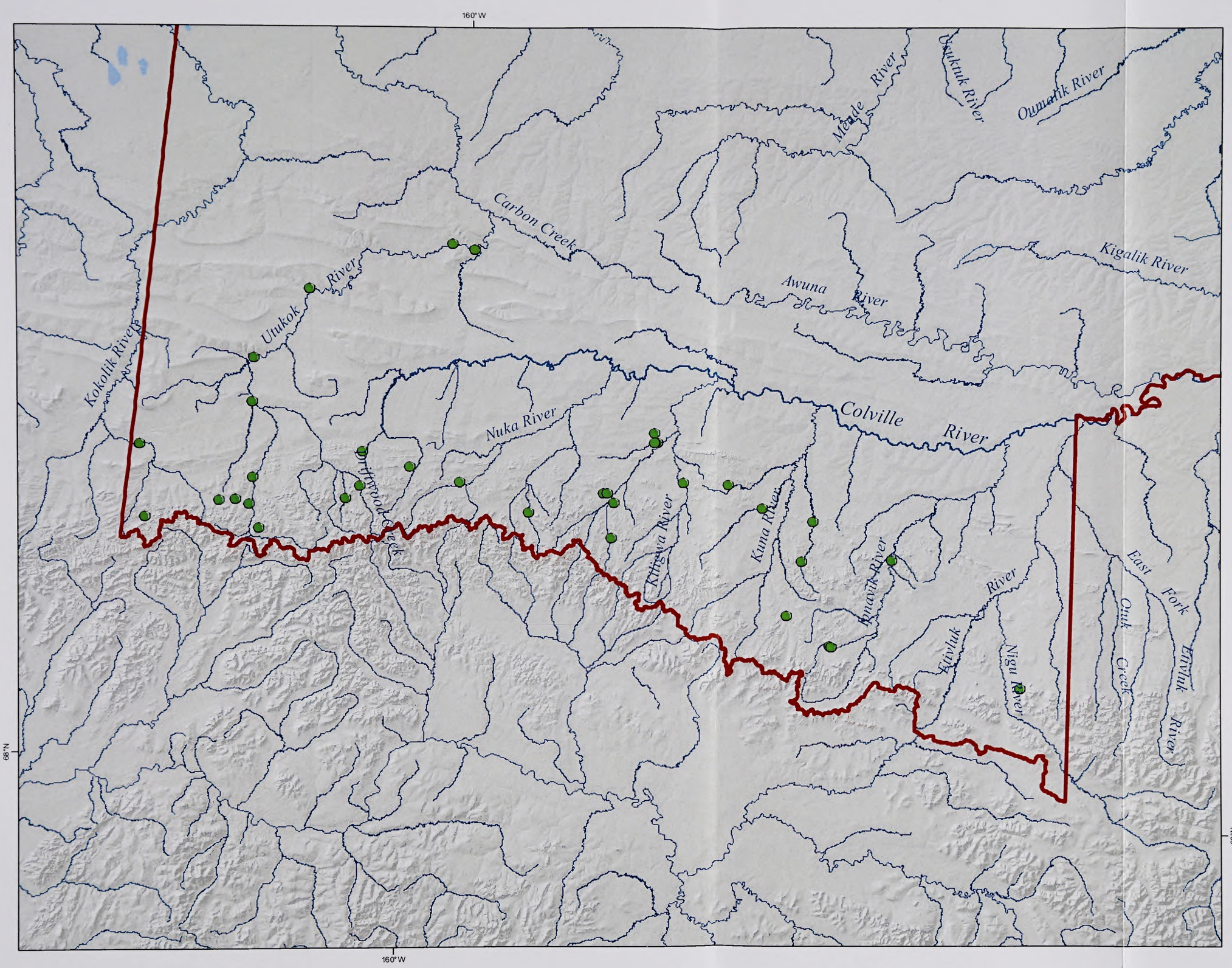
Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS

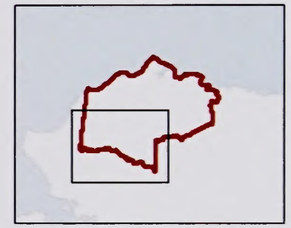


Map 3.3.8-5

Golden Eagle Nesting/ Activity Sites

Source: BLM, 2006

- Golden Eagle Locations
- NPR-A Boundary



0 6 12 18 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS

160°W
155°W
150°W
72°N
70°N

ARCTIC OCEAN
Chukchi Sea
Beaufort Sea

Point Barrow Radar Site
Barrow Townsite
Point Barrow
Tangent Point
Dease Inlet
Point Lonely Radar Site
Cape Simpson
Pitt Point
Smith Bay
Admiralty Bay
Point Franklin
Point Belcher
Peard Bay
Wainwright
Inaru River
Kugrua River
Cape Halkett
Harrison Bay
Atigaru Point
Teshekpuk Lake
Atqasuk
Alaktak River
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Ivisaruk River
Kuk River
Kaolak River
Avalik River
Meade River
Tunalikmiut River
Ikpikpuk River
Kaolak Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tingmiagiuvik) River
Kikiakrorak River
Kogosukruk River
Nuiqsut
Umiat

Map 3.3.8-6

Polar Bear - Critical Habitat & Confirmed Dens

Source: USFWS, 2011
USGS, 2007

Confirmed Polar Bear Den Locations (1972 - 2007)

Polar Bear Critical Habitat

- Critical Habitat Exclusion Areas
- Barrier Islands Critical Habitat (outline enlarged in order to be visible at this scale)
- Denning Critical Habitat
- Feeding Critical Habitat

NPR-A Boundary

0 6 12 24 36 48 Miles

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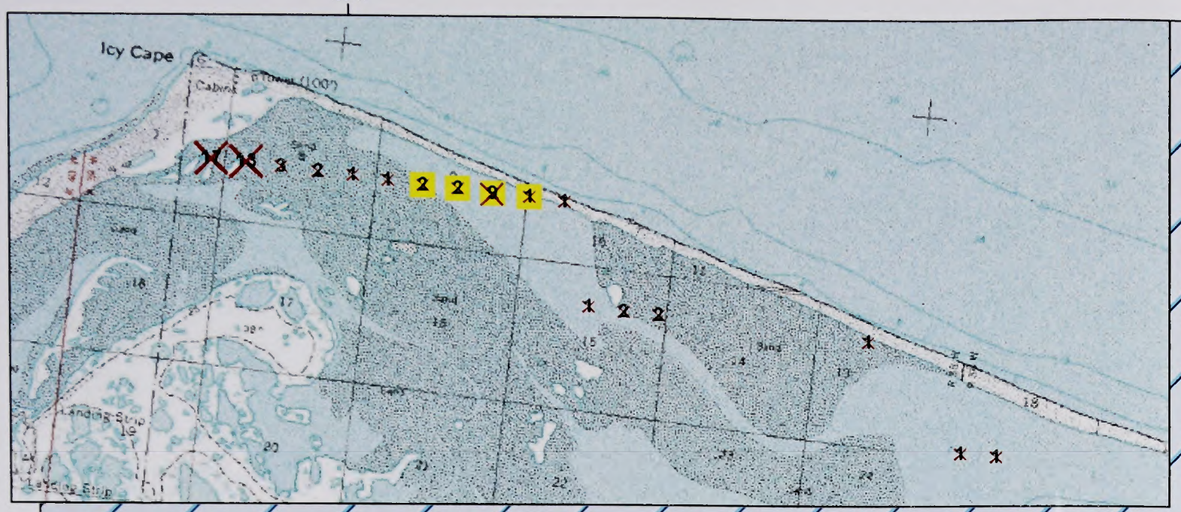
Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS


Icy Cape
Cabins
Landing Strip
Landing Strip
2
2
2
2
2
2
1
1
1

Map 3.3.9-1

Special Areas

Sources: USDOI BLM, 2004 & 2009

Special Area

Land Status

Native Patent or IC

Native Selected

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

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ARCTIC OCEAN

Chukchi Sea

Beaufort Sea

Barrow

Point Barrow

Tangent Point

Cape Simpson

Point Franklin

Point Belcher

Peard Bay

Wainwright

Kasegaluk Lagoon Special Area

Icy Cape

Lagoon

Kasegaluk

Atqasuk

Admiralty Bay

Dease Inlet

Simpson Bay

Pitt Point

Cape Halkett

Harrison Bay

Atigaru Point

Oliktok

Teshekpuk Lake Special Area

Alpine

Nuiqsut

Point Lay

Utukok River

Utukok River Uplands Special Area

Kaolak River

Anaktuvuk River

Meade River

Awuna River

Colville River Special Area

Colville River

Maybe Creek

Umiat

Anaktuvuk Pass

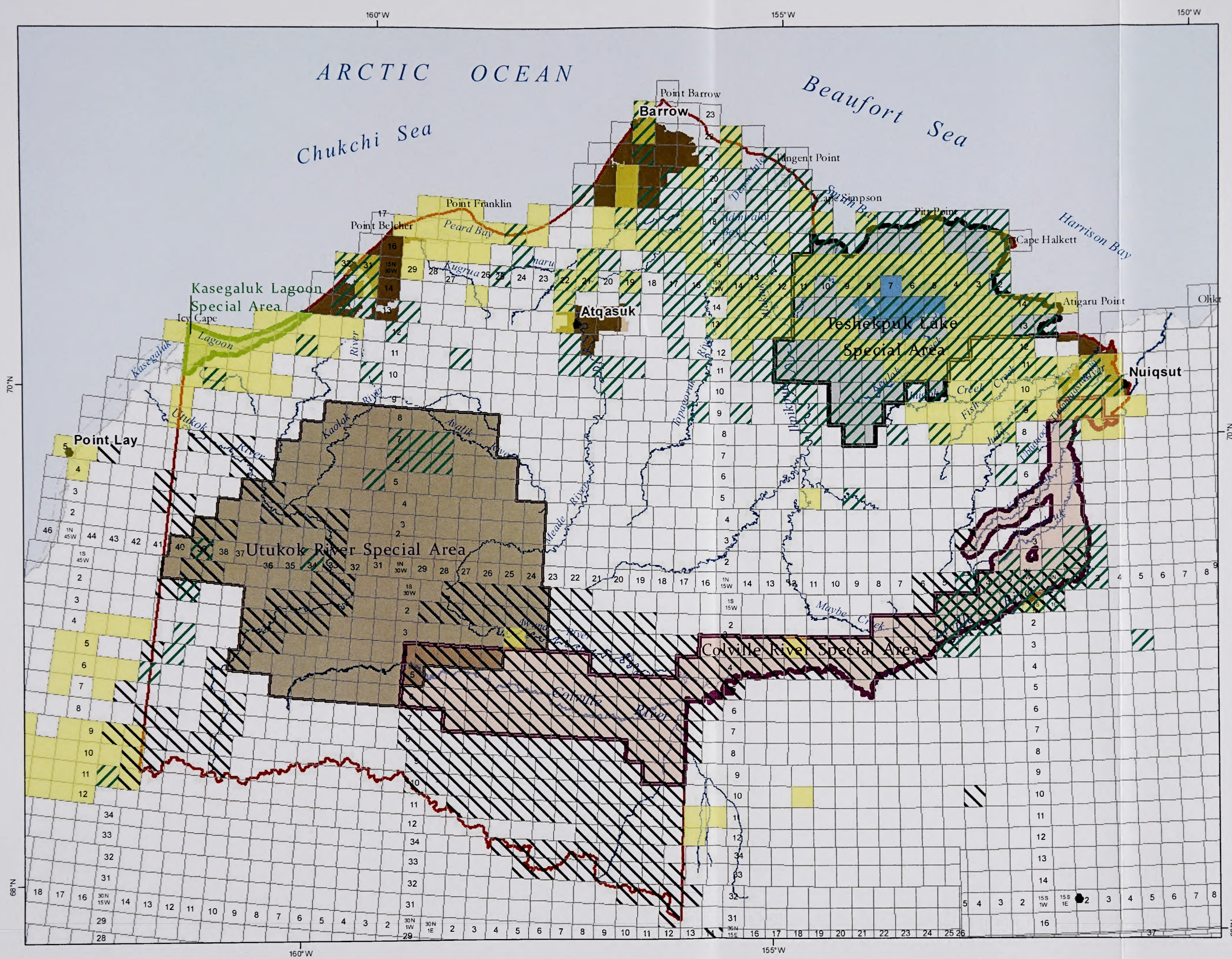
160° W

155° W

150° W

70° N

68° N



Map 3.4.1-1
Areas Currently Under Permit

Sources: USDOI BLM, 2004 & 2009 & 2011

Permits
- Special Recreation Permits (SRPs)
- Rights-of-Way (ROWs)
- All other permits

Land Status
- Native Patent or IC
- Native Selected

Special Area

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

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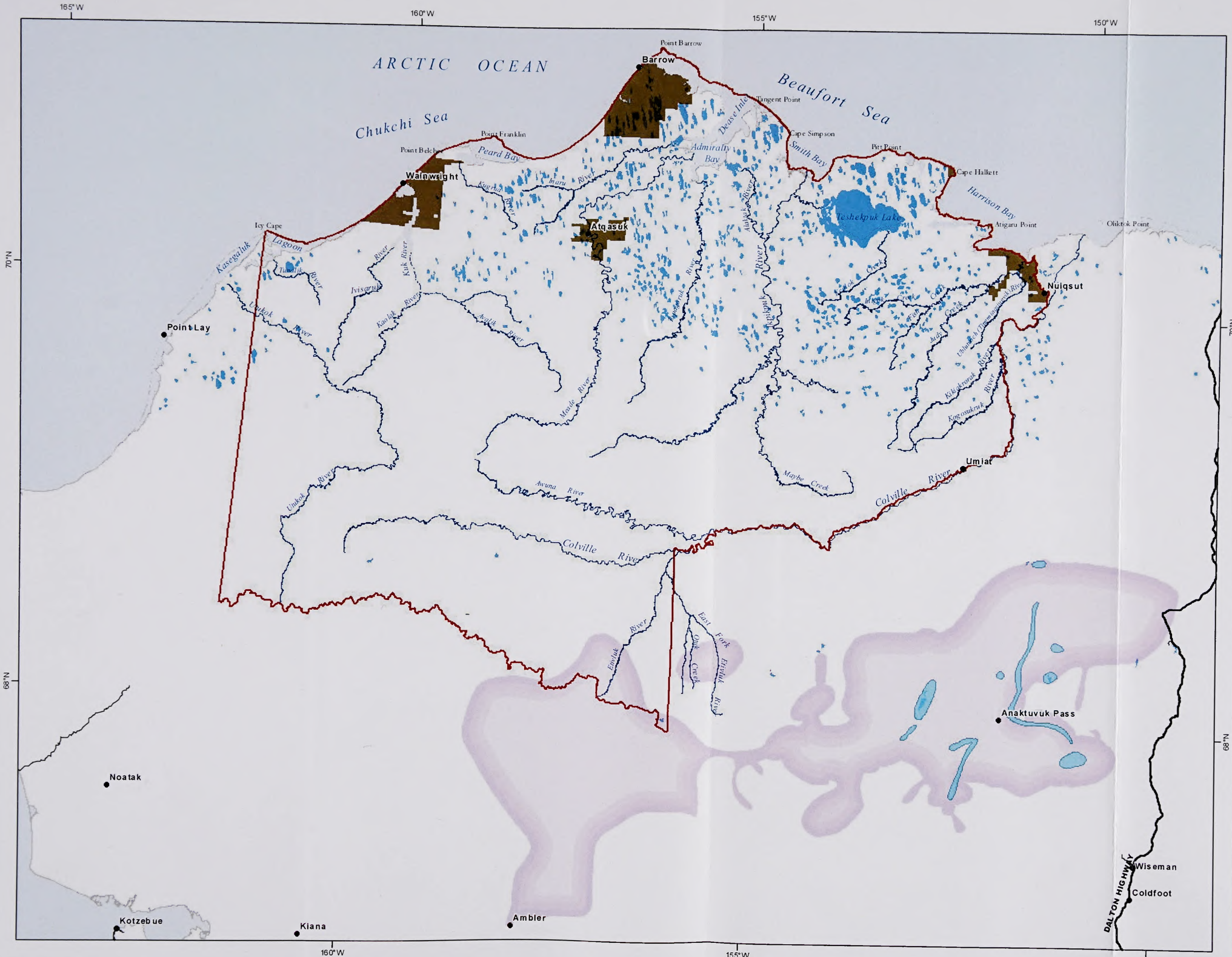

Map 3.4.3-1

Anaktuvuk Pass Subsistence Use Area

Sources: Pedersen 1979

Subsistence Resource

Fish

Anaktuvuk Pass Community Use Area

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

Native Patent or IC within NPR-A

NPR-A Boundary

0 6 12 24 36 48 Miles

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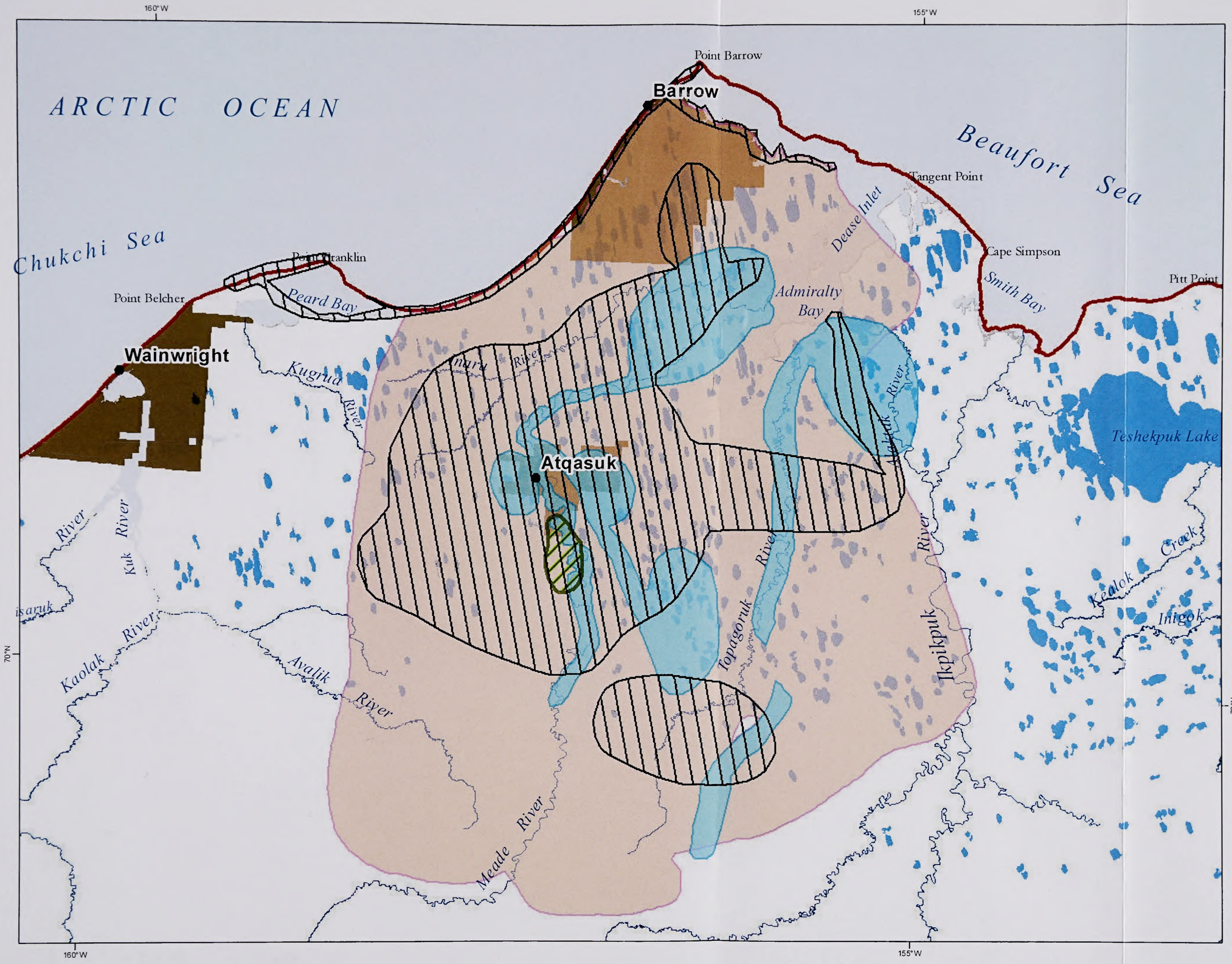
Projection: Albers Conic Equal Area referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS



Map 3.4.3-2

Subsistence Use Areas - Atqasuk

Sources: Pedersen 1979.

Subsistence Resource

- Birds
- Moose
- Fishing
- Caribou

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- Native Patent or IC
- NPR-A Boundary

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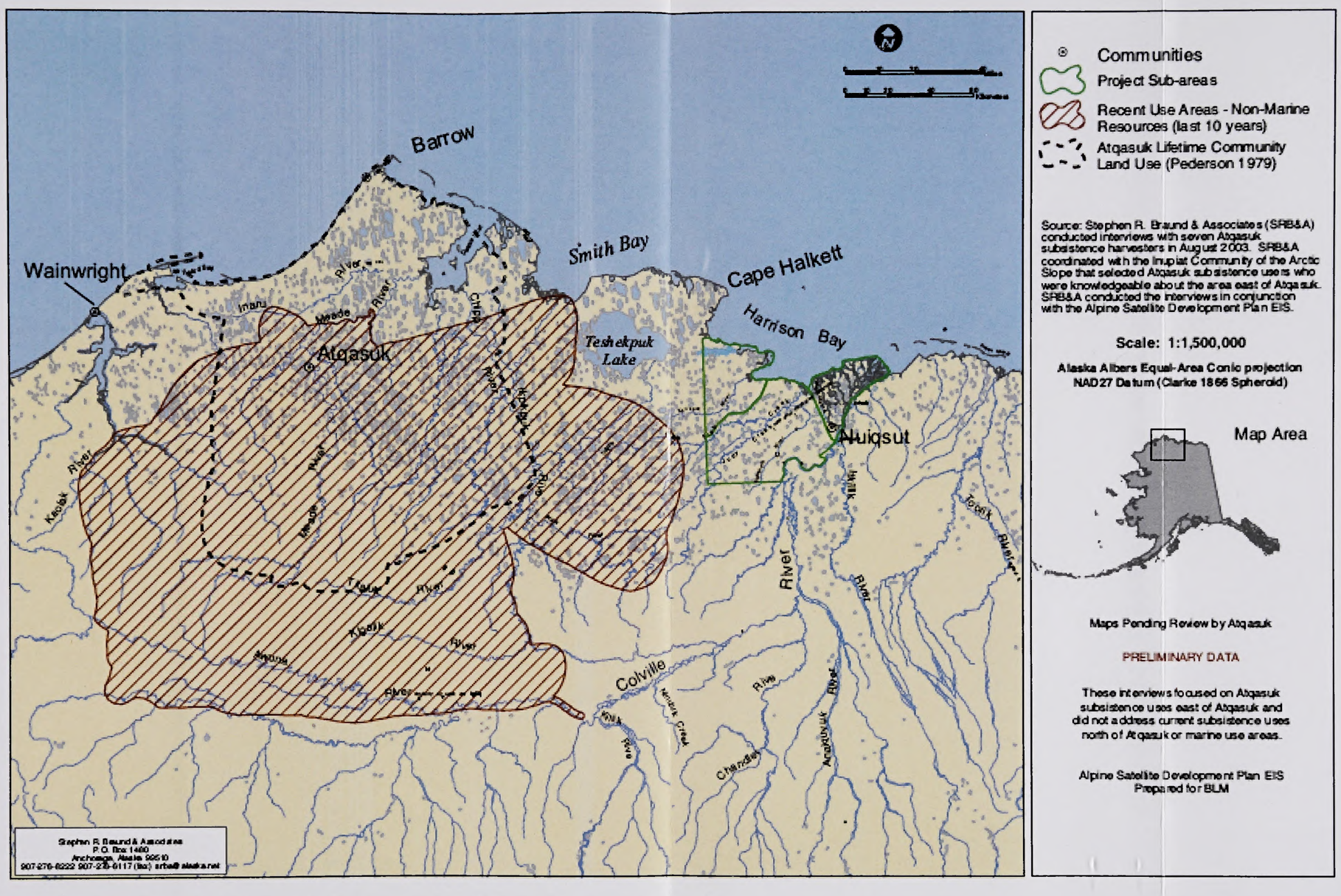
Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS



Communities

Project Sub-areas

Recent Use Areas - Non-Marine Resources (last 10 years)

Atqasuk Lifetime Community Land Use (Pederson 1979)

Source: Stephen R. Braund & Associates (SRB&A) conducted interviews with seven Atqasuk subsistence harvesters in August 2003. SRB&A coordinated with the Inupiat Community of the Arctic Slope that selected Atqasuk subsistence users who were knowledgeable about the area east of Atqasuk. SRB&A conducted the interviews in conjunction with the Alpine Satellite Development Plan EIS.

Scale: 1:1,500,000

Alaska Albers Equal-Area Conic projection
NAD27 Datum (Clarke 1866 Spheroid)

Map Area

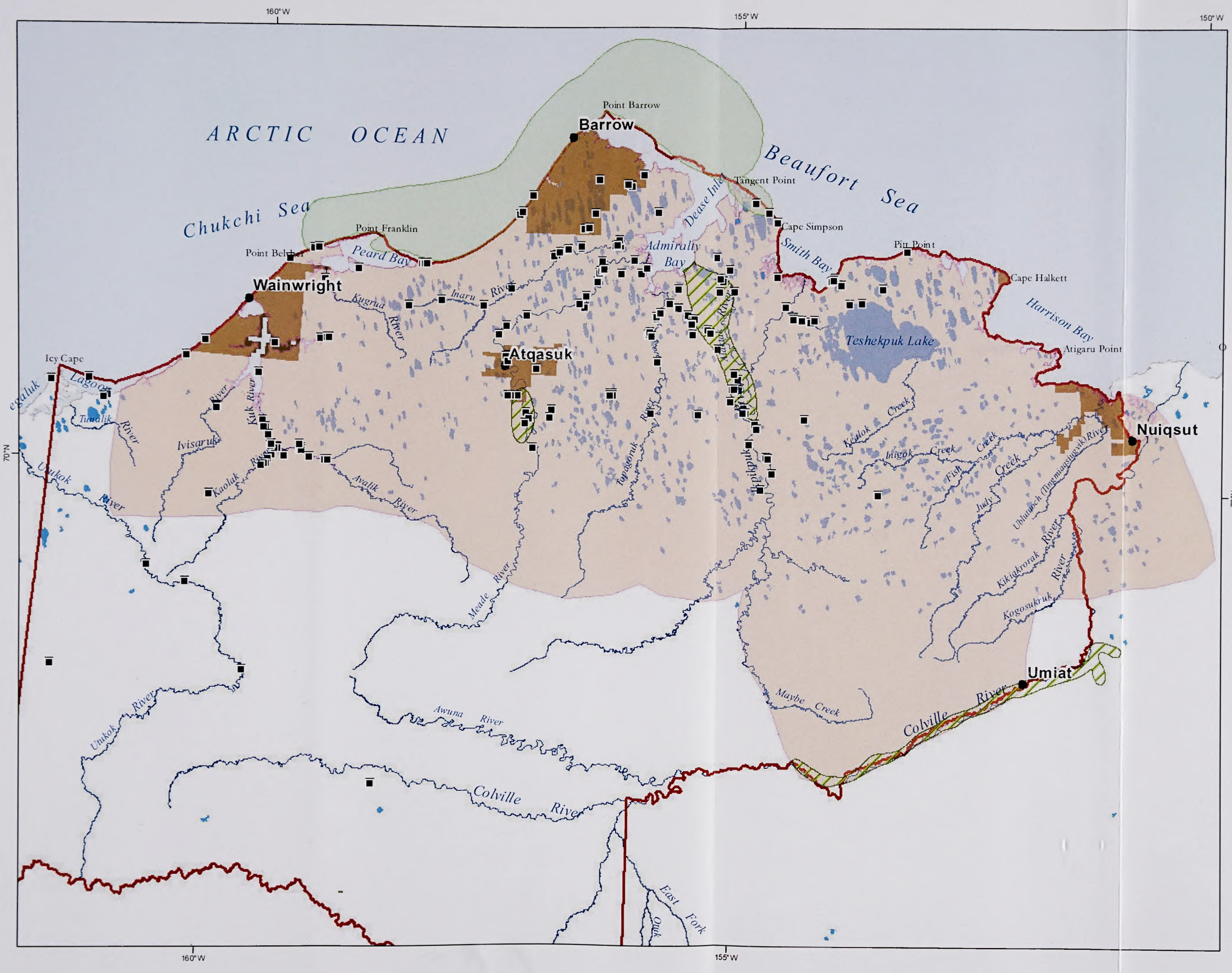
Maps Pending Review by Atqasuk

PRELIMINARY DATA

These interviews focused on Atqasuk subsistence uses east of Atqasuk and did not address current subsistence uses north of Atqasuk or marine use areas.

Alpine Satellite Development Plan EIS
Prepared for BLM

Map3.4.3-3 Atqasuk Partial Subsistence-Use Areas for Non-Marine Resources, 2003.



Map 3.4.3-4

North Slope Borough Subsistence Cabins and Fixed Campsites & Barrow Subsistence Use Areas for Whale, Moose and Caribou

Sources: Pedersen, 1979
North Slope Borough, 2008

Subsistence Cabin and Fixed Campsites

Subsistence Resource

- Whales
- Moose
- Caribou

Resource use areas change through time and are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- Native Patent or IC within NPR-A
- NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160°W

155°W

ARCTIC OCEAN

Chukchi Sea

Beaufort Sea

Barrow

Point Barrow

Point Franklin

Point Belcher

Peard Bay

Wainwright

Inaru River

Kuguruk River

Atqasuk

Admiralty Bay

Elson Lagoon

Cape Simpson

Smith Bay

Pitt Point

Cape Halkett

Harrison Bay

Teshekpuk Lake

Nigaru Point

Meade River

Avalik River

Kaolak River

Kuk River

Ikpikpuk River

Kalikpik River

Inigok Creek

Fish Creek

Judy Creek

Ublutuoch (Tingmiagsugvik) River

Kikiakrorak River

Kogosukruk River

70°N

160°W

155°W

Map 3.4.3-5

Barrow Subsistence Use Areas for Fish and Birds

Source: Pedersen 1979.

Subsistence Resource

- Birds
- Fish

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- Native Patent or IC within NPR-A
- NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

Map 3.4.3-6
Nuiqsut Subsistence Use Area

Sources: Pedersen 1979; Hoffman, Libbey and Spearman 1988

Subsistence Resource

- Moose
- Caribou
- Seal
- Furbearer- Hunting
- Fish
- Whaling

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- Native Patent or IC within NPR-A
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

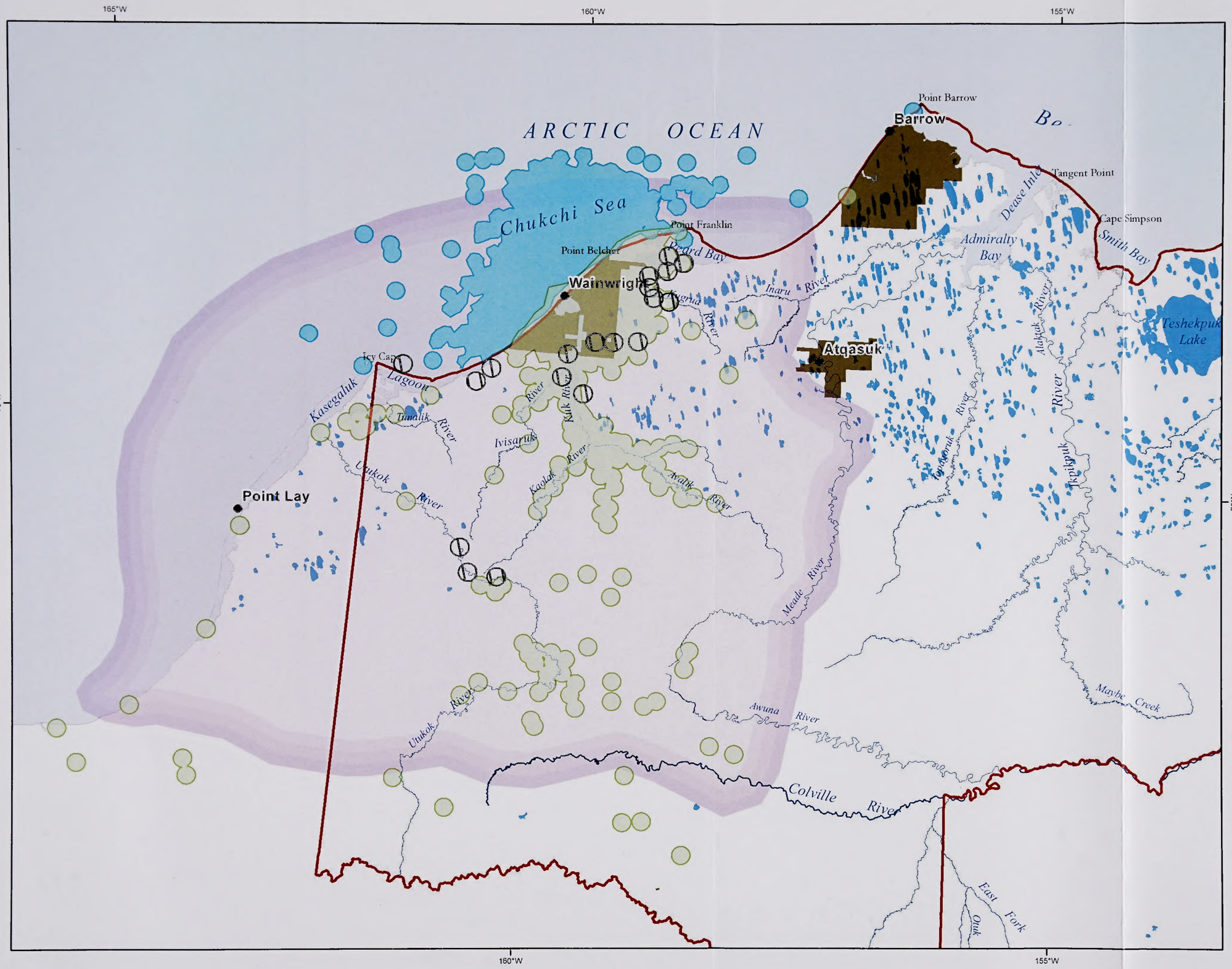
Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS

155°W 150°W 145°W

70°N 68°N

Point Barrow
Barrow
Beaufort Sea
Tangent Point
Cape Simpson
Pitt Point
Smith Bay
Admiralty Bay
Cape Halkett
Harrison Bay
Teshekpuk Lake
Atigaru Point
Oliktok Point
Prudhoe Bay
Deadhorse
Nuiqsut
Umiat
Colville River
Maybe Creek
Anaktuvuk Pass
Arctic Village



Map 3.4.3-7

Subsistence Use Areas - Wainwright

Sources: MMS/NSB, 1993.

Subsistence Resource

- Fish
- Terrestrial Mammals
- Marine Mammals
- Traditional Use Area

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- Native Patent or IC within NPR-A
- NPR-A Boundary

0 12 24 36 Miles

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Projection: Albers Conic Equal Area referencing NAD83

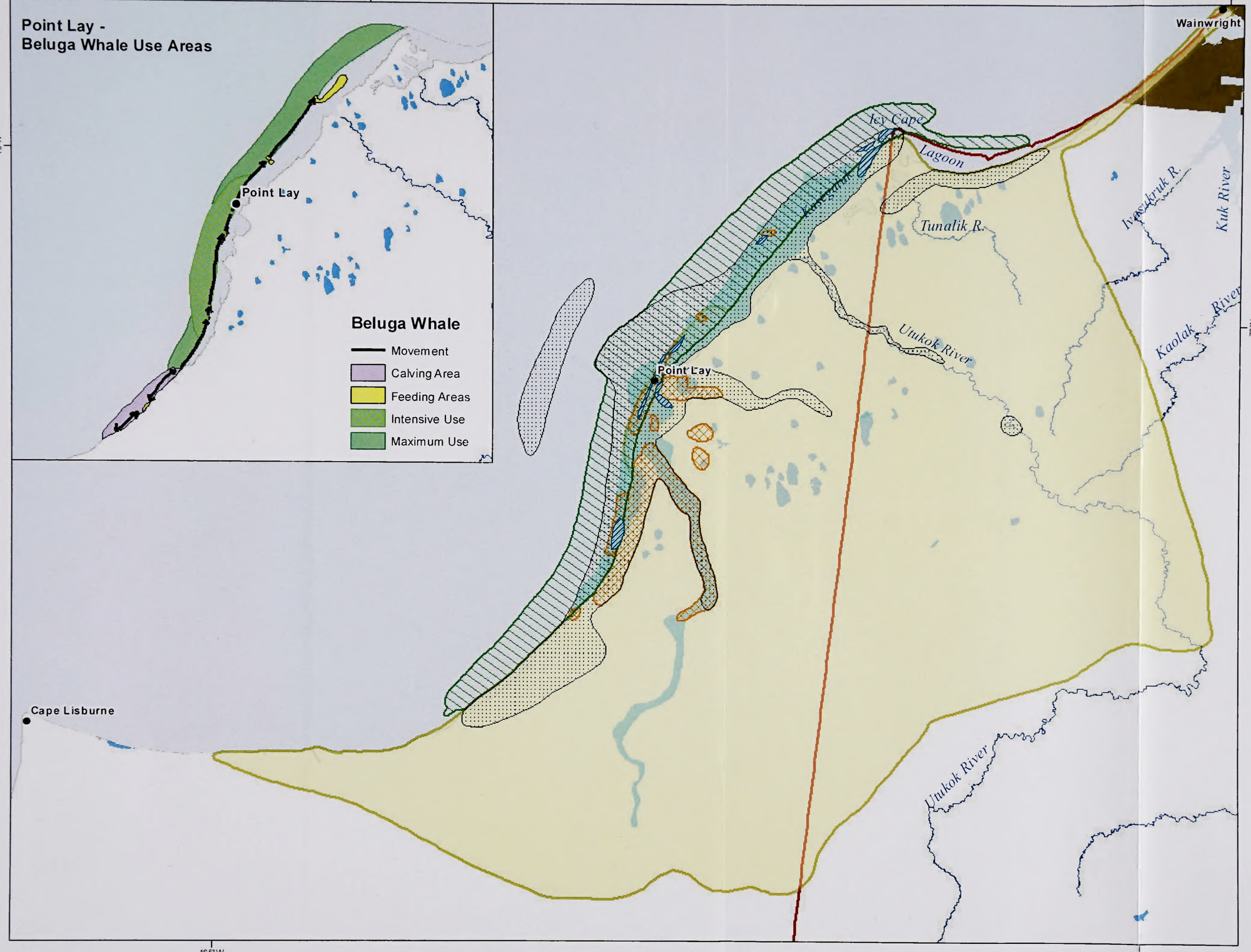
Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska

Final IAP/EIS

Map 3.4.3-8
Point Lay Subsistence Use Area

Sources: Pedersen 1979



Subsistence Resource

- Fish- Intensive Use
- Waterfowl
- Marine Mammals
- Gathering
- Fish
- Mammals

Resource use areas change through time are not fixed entities. Land outside these areas should not be assumed to be less important to community residents.

- Native Patent or IC within NPR-A
- NPR-A Boundary

0 6 12 24 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
Final IAP/EIS

Map 3.4.7-1
Eligible Wild & Scenic Rivers

Sources: USGS NHD 2010
BLM 2008

Eligible Wild & Scenic Rivers Considered for Suitability

Eligible Wild & Scenic Rivers Determined Not Suitable in Past Planning

NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

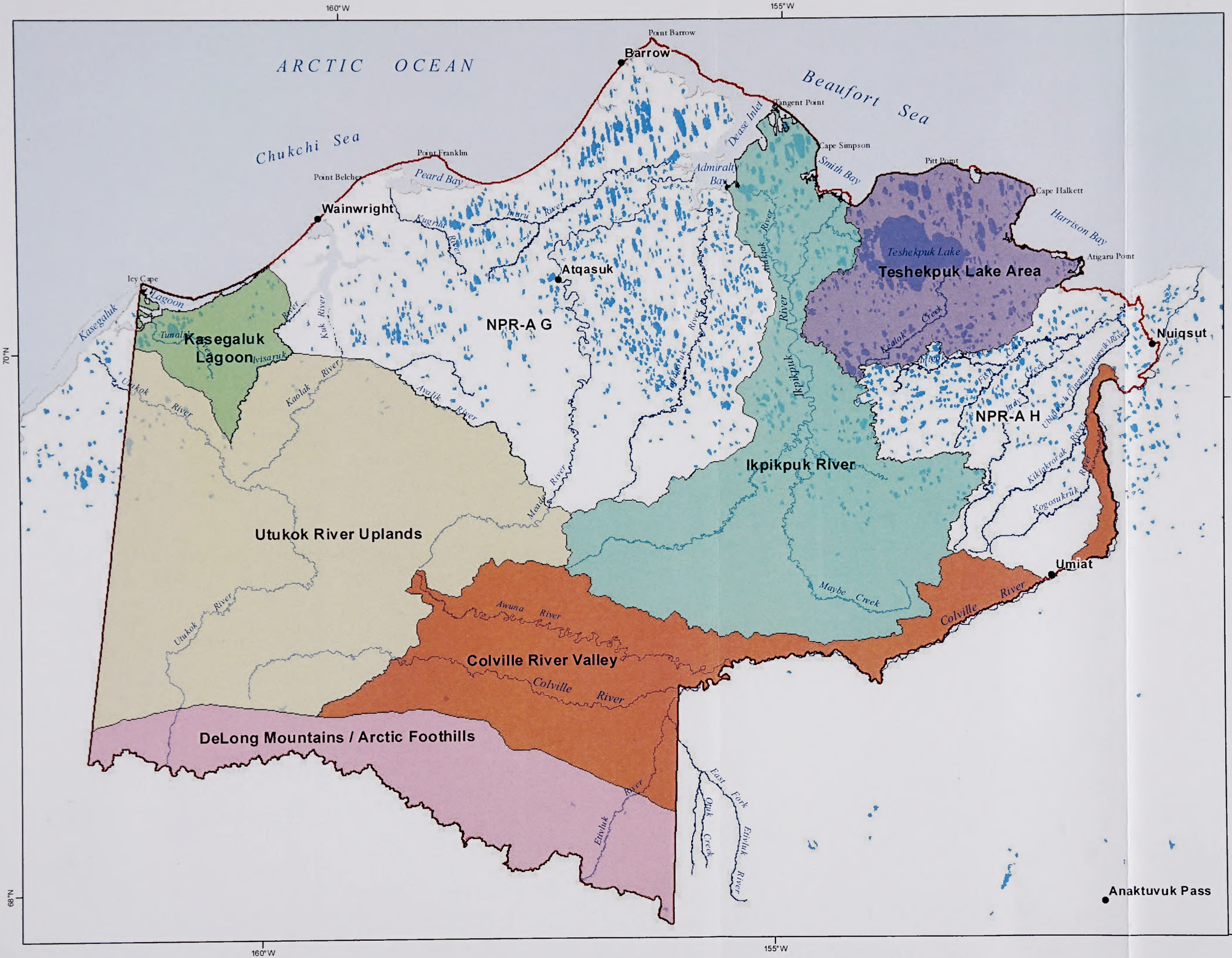
160° W
155° W
150° W
70° N
68° N
ARCTIC OCEAN
Chukchi Sea
Beaufort Sea
Point Barrow
Barrow
Tangent Point
Dease Inlet
Cape Simpson
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Atigaru Point
Oliktok
Point Franklin
Point Belcher
Peard Bay
Admiralty Bay
Wainwright
Kugrua River
Inaru River
Atqasuk
Alaktak River
Teshekpuk Lake
Icy Cape
Lagoon
Kasegaluk
Tunalik River
Ivisaruk
Kuk River
Kaolak River
Avalik River
Topagoruk River
Ikpikpuk River
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tingmiagsiteg) River
Nuiqsut
Kikiakrora River
Kogosukruk River
Umiat
Maybe Creek
Colville River
Kokolik River
Utukok River
Carbon Creek
Awuna River
Ituna River
Driftwood Creek
Nuka River
Killigwa River
Kuna River
Meade River
Eivluk River
Nigu River
East Fork Eivluk River
Otuk Creek
Anaktuvuk Pass

Map 3.4.8-1
Wilderness Characteristics Inventory Areas

Source: BLM 1979

Wilderness Unit

NPR-A Boundary



0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska

National Petroleum Reserve - Alaska
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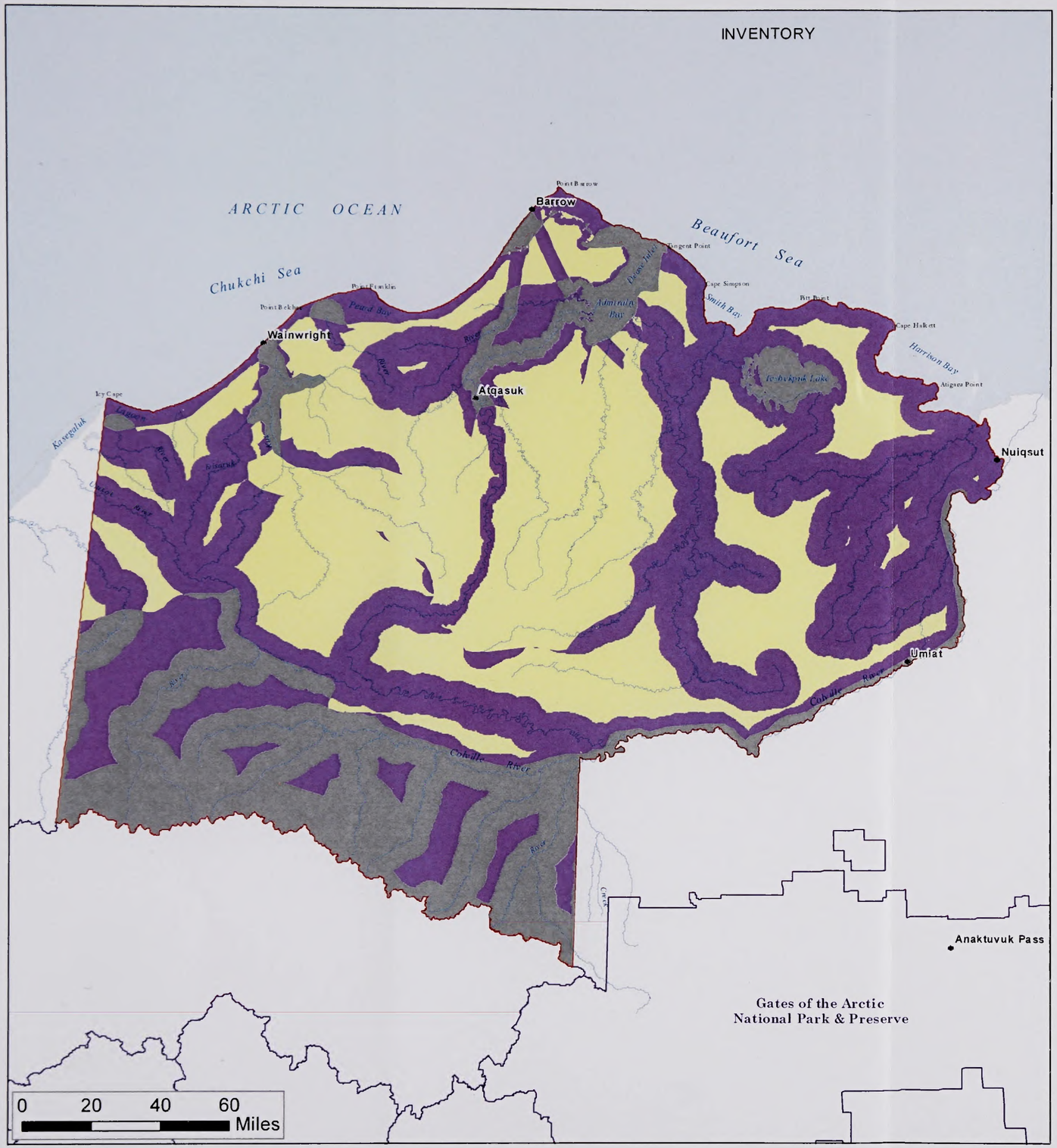
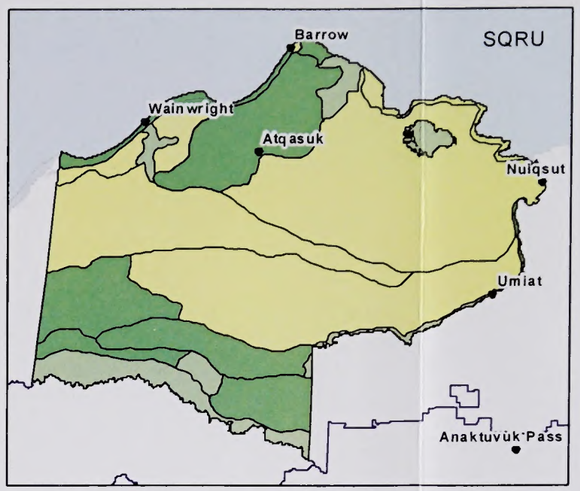
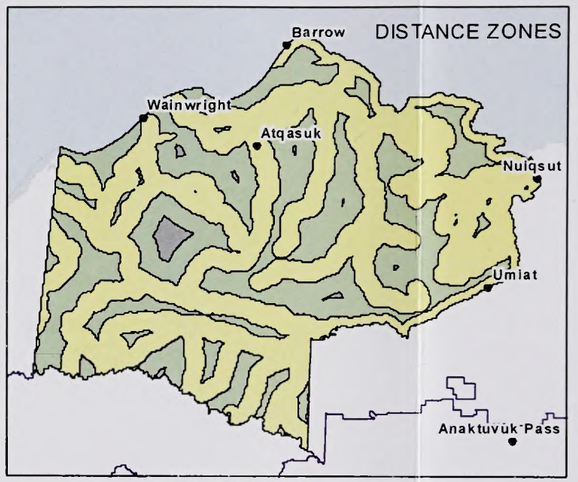
INVENTORY



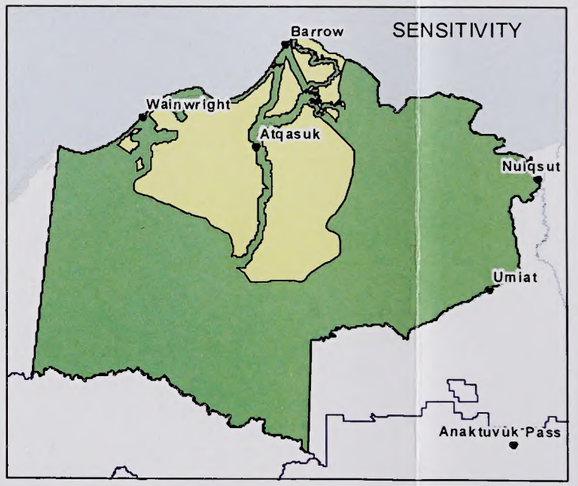
SQRU



DISTANCE ZONES



SENSITIVITY



Map 3.4.9-1

Visual Resource Management (VRM)

Source: BLM 2011

VRM Inventory Classes
- Class II
- Class III
- Class IV

Distance Zone
- Background
- Foreground
- Seldom Seen

Sensitivity
- High
- Medium

SQRU
- a
- b
- c

NPR-A Boundary

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Projection: Albers Conic Equal Area
referencing NAD83

Bureau of Land Management - Alaska
National Petroleum Reserve - Alaska
Final IAP/EIS

160° W
155° W
150° W
70° N
68° N

Extends northward to the Exclusive Economic Zone (EEZ) boundary

ARCTIC OCEAN

Chukchi Sea

Beaufort Sea

Point Barrow
Barrow
Point Franklin
Point Belcher
Wainwright
Peard Bay
Ikpek Lagoon
Ice Cape
Kasegaluk Lagoon
Tungak Point
Cape Simpson
Admiralty Bay
Smith Bay
Pitt Point
Cape Halkett
Harrison Bay
Angun Point
Oliktok Point
Nuiqsut
Teshekpuk Lake
Atqasuk
Point Lay
Umiat
Anaktuvuk Pass

Inaru River
Kugrua River
Tunalik River
Ivisaruk River
Kuk River
Kaolak River
Cukok River
Avalik River
Meade River
Ikpikpuk River
Alaktak River
Tupagoruk River
Kealok Creek
Inigok Creek
Fish Creek
Judy Creek
Ublutuoch (Tingmiaksikvik) River
Kikiakrorak River
Kogosukruk River
Unukok River
Awuna River
Colville River
Maybe Creek
Etivluk River
Onuk Creek
East Fork Etivluk River

Map D-1
Essential Fish Habitat

Sources: NPFMC 2006, 2009; ADF&G 2011a

- Pacific salmon freshwater
- Pacific salmon estuarine
- Pacific salmon marine & Arctic cod

  This area extends north to the Exclusive Economic Zone (EEZ) boundary, 200 nautical miles from State waters.
- Saffron cod
- Rivers
- Lakes
- NPR-A Boundary

0 6 12 24 36 48 Miles

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Projection: Albers Conic Equal Area referencing NAD83

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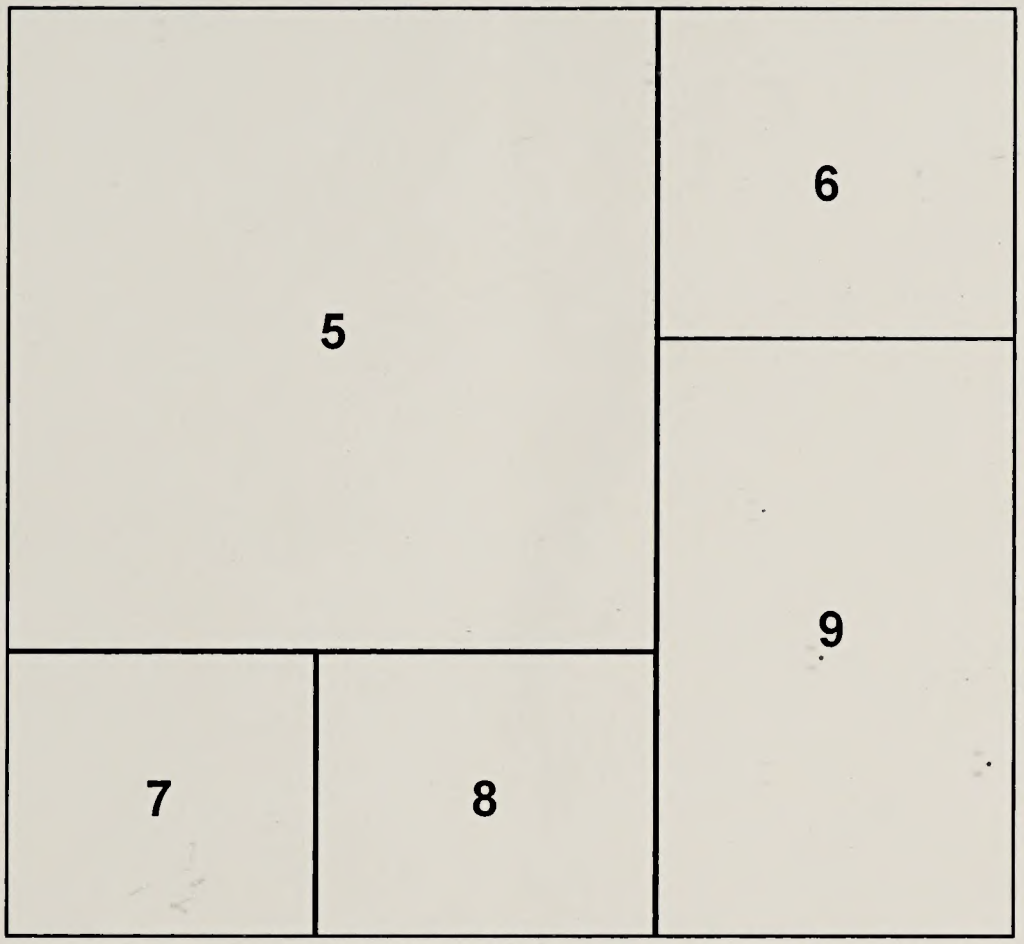

Back Cover Photos:

5. Coastal erosion due to warming permafrost shoreline, National Petroleum Reserve-Alaska.
   Photo by University of Texas.

6. Arctic Fox, National Petroleum Reserve-Alaska.

7. Transporting exploration drill rig equipment, National Petroleum Reserve-Alaska.
   Photo by NSSI.

8. Bear flowers on a thermokarst slump along the Colville River, National Petroleum Reserve-Alaska.
   © Richard Kahn

9. Subsistence ice fishing, Nuiqsut, Alaska. Photo by NSSI.